British West Indies Central Sugar Cane Breeding Station, Barbados

EIGHTEENTH
ANNUAL REPORT

For The Year Ending September 30th, 1951

19 SEP 1952

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I. FOREWORD

ADVISORY COMMITTEE

The eighteenth meeting of the Advisory Committee was held in Barbados on November 13th to 16th, 1951. The Proceedings of the Committee, which have already been circulated, are appended to this Report.

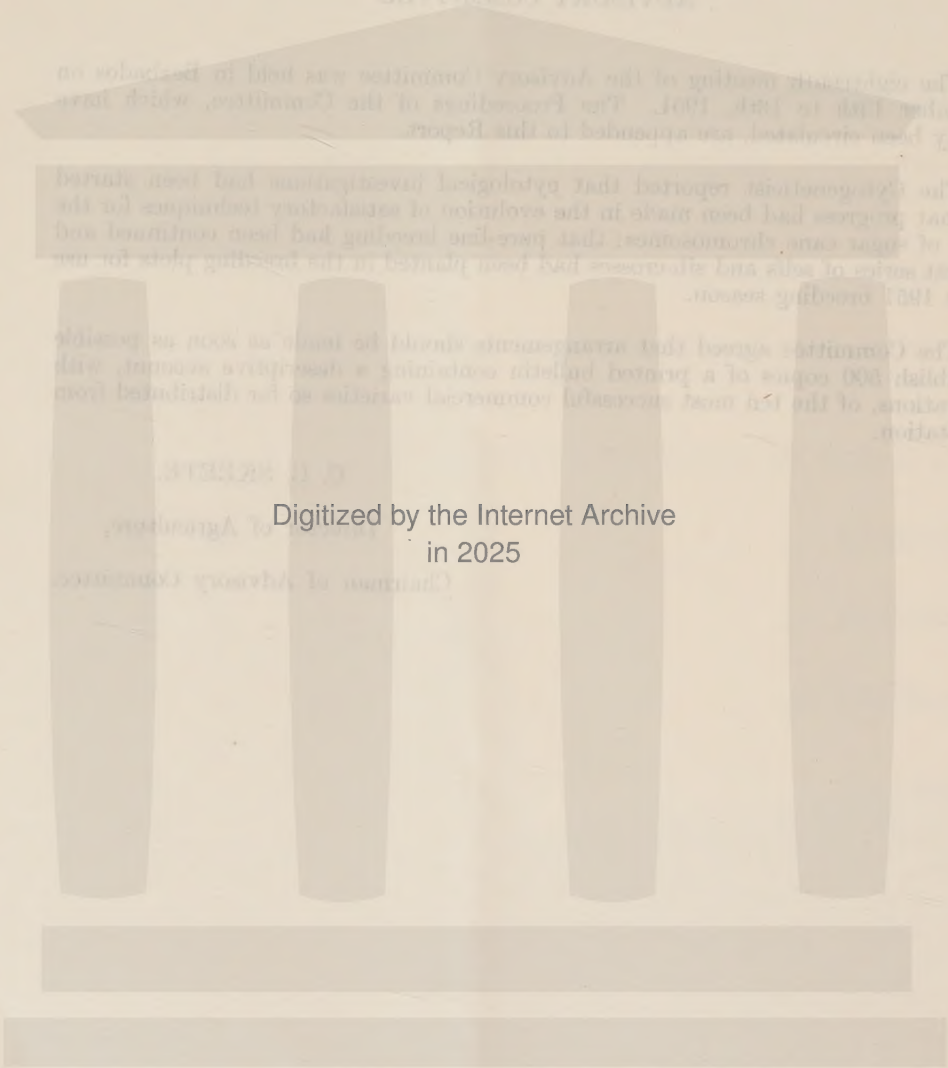
The Cytogeneticist reported that cytological investigations had been started and that progress had been made in the evolution of satisfactory techniques for the study of sugar cane chromosomes; that pure-line breeding had been continued and the first series of selfs and sib-crosses had been planted in the breeding plots for use in the 1951 breeding season.

The Committee agreed that arrangements should be made as soon as possible to publish 500 copies of a printed bulletin containing a descriptive account, with illustrations, of the ten most successful commercial varieties so far distributed from the Station.

C. C. SKEETE,

Director of Agriculture,

Chairman of Advisory Committee.



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British West Indies Central Sugar Cane Breeding Station, Barbados.

EIGHTEENTH ANNUAL REPORT FOR THE YEAR ENDING THE 30TH SEPTEMBER, 1951

II. SUGAR CANE BREEDING—SEEDLING SELECTION AND TRIALS

(i) SUGAR CANE BREEDING—B.52′ AND B.53′ SERIES

The usual methods were employed in the controlled crossing of various sugar cane varieties at Groves Agricultural Station from October, 1950, to January, 1951. Good rains during the early part of the year resulted in the various varieties entering the rainy season in a very advanced condition, and this in turn resulted in exceptionally heavy arrowing. One hundred and twenty-six crosses were made as well as six selfs and sib-crosses for the Cytogeneticist.

(ii) SEEDLING RAISING, POTTING, PLANTING IN THE FIELD NURSERY AND IN THE SHORT SEASON FIRST YEAR SEEDLING TRIAL

Germination was fairly good but, as always happens, some crosses proved to be incompatible and failed to produce viable seed, while quite an appreciable number produced relatively few seedlings. It is estimated that nearly eighty-eight thousand seedlings germinated, of which over thirty thousand were potted, over twenty-six thousand survived, and were planted in the Nursery and the B.52′ Series Short Season First Year Seedling Trial.

At the Seventeenth Meeting of the Advisory Committee held in Jamaica in October, 1950, it was decided that in future the prefix B.s. should only be applied to those seedlings which perform well only over a short growing season. The B.s.52′ Series accordingly becomes the B.52′ series until some of the Short Season Selections prove to be outstanding over a growing season of approximately twelve months only.

Table I gives, under group heads, a list of the crosses made, the number of seedlings germinated, potted and planted in the Field Nursery and in the B.52′ Series Short Season First Year Seedling Trial, while Appendix I gives detalis of all crosses made.

TABLE I

Number of Crosses and Seedlings in each Group germinated, potted and planted in the Field Nursery and the B.52′ Series Short Season First Year Seedling Trial

GROUP	No. of Crosses	No. Germ-inated	No. Potted	No. Planted in Field Nursery	No. Planted in First Year Trial
S. officinarum x S. spontaneum					
3rd Nobilisation Glagah	2	5,014	410	336	—
4th Nobilisation Glagah	1	300	260	241	—
5th Nobilisation Glagah	1	60	60	46	—
Noble x Glagah x Local	1	4,500	2,000	1,634	200
Noble x Glagah x Celebes	7	1,317	917	838	—
Noble x Glagah x Local x Celebes	1	36	36	27	—
S. officinarum x S. barberi					
3rd Nobilisation Chunnee	2	710	520	420	—
4th Nobilisation Chunnee	1	15	13	12	—
S. officinarum x S. spontaneum x S. barberi					
Noble x Local x Chunnee	10	3,253	3,243	2,176	400
Noble x Glagah x Chunnee	17	8,808	4,031	3,276	200
Noble x Glagah x Local x Chunnee	48	25,577	11,727	8,940	1,000
Noble x Glagah x Celebes x Chunnee	6	6,673	1,303	1,198	—
Noble x Glagah x Local x Celebes x Chunnee	6	4,540	2,040	1,622	200
Noble x Local x Celebes x Chunnee	1	1,000	520	435	—
S. officinarum x S. spontaneum x S. sinense					
Noble x Glagah x Celebes x Sinense	1	81	81	77	—
Noble x Glagah x Local x Sinense	1	7,000	275	249	—
Noble x Glagah x Sinense	2	9	8	7	—
S. officinarum x S. spontaneum x S. barberi x S. sinense					
Noble x Local x Chunnee x Sinense	5	1,298	948	865	—
Noble x Glagah x Chunnee x Sinense	2	8,200	600	543	—
Noble x Glagah x Local x Chunnee x Sinense	7	1,480	1,080	918	—
Noble x Glagah x Local x Celebes x Chunnee x Sinense	1	—	—	—	—
S. officinarum x S. barberi x S. robustum					
Noble x Chunnee x Robustum	3	6,056	206	144	—
S. officinarum x S. spontaneum x Erianthus arundinaceous					
Noble x Glagah x Erianthus	1	2,000	300	275	—
TOTALS	126	87,927	30,578	24,279	2,000

(iii) PLANTING THE FIRST YEAR TRIAL—B.52′ SERIES

This series of seedlings was bred in 1949, potted and planted in the Field Nursery in 1950, and from this into the First Year Seedling Trial in October 1950. Again, all seedlings considered to be too thin for commercial purposes were discarded at this stage, as well as all seedlings which arrowed, unless the seedlings were early nobilisations and were required for the breeding plots only. This procedure greatly reduces the number of seedlings planted in the First Year Seedling Trial, and results in a great saving of time and labour during the crop season.

The numbers of crosses and seedlings in each group planted in the First Year Seedling Trial are summarised in Table II, while details for each cross are given in Appendix II.

TABLE II

Number of Crosses and Seedlings in each Group Planted in the First Year Seedling Trial, October, 1950—B.52′Series

GROUP	No. of Crosses	No. of Seedlings Planted in First Year Trial
S. officinarum x S. spontaneum		
2nd Nobilisation Local	1	5
Noble x Glagah x Local	1	686
Noble x Glagah x Celebes	2	498
S. officinarum x S. spontaneum x S. barberi		
Noble x Local x Chunnee	8	1,736
Noble x Glagah x Chunnee	13	1,320
Noble x Local x Glagah x Chunnee	29	4,327
Noble x Glagah x Celebes x Chunnee	5	589
Noble x Local x Celebes x Chunnee	2	134
Noble x Local x Glagah x Celebes x Chunnee	8	999
S. officinarum x S. spontaneum x S. sinense		
Noble x Glagah x Sinense	1	10
S. officinarum x S. spontaneum x S. barberi x S. sinense		
Noble x Chunnee x Glagah x Local x Sinense	5	512
Noble x Chunnee x Local x Sinense	1	100
S. officinarum x S. spontaneum x S. robustum		
Noble x Glagah x Robustum	2	22
S. officinarum x S. spontaneum x S. barberi x S. robustum		
Noble x Local x Chunnee x Robustum	3	128
S. officinarum x S. spontaneum x S. barberi x S. sinense x S. robustum		
Noble x Glagah x Local x Chunnee x Sinense x Robustum	—	100
TOTALS	81	11,166

(iv) RESULTS OF REAPING THE FIRST YEAR SEEDLING TRIALS—B.51′ SERIES

These series of seedlings were bred in 1948 and 1949 respectively. The long season types were planted in the Field Nursery in May, 1949, and from this into the First Year Seedling Trial in October 1949. The Short Season types were planted from pots into a Short Season First Year Seedling Trial in May 1950.

As in previous years, the seedlings were cut, cleaned, bundled and laid out for inspection. Selection was made initially on appearance, and later, on the usual data obtained from each bundle.

Thirty-one selections were made from the Short Season Trial and three hundred and forty-seven from the Long Season Trial, making a total of three hundred and seventy-eight altogether.

Tables III and IV give details of the field and final selections made from each cross in the Long and Short Season Trials respectively.

Table III

First Year Seedlings—B.51′ Series, Field and Final Selections

CROSS	No. of Seedlings Cut	No. Field Selected	% Field Selection	No. Final Selection	% Final Selection
B.3365 x B.603	75	9	12	5	7
,, x B.34104	160	10	6	5	3
,, x B.37164	100	6	6	3	3
,, x B.41203	33	4	12	2	6
B.3439 x B.3337	60	5	8	2	3
,, x B.35269	15	2	13	2	13
,, x B.37175	60	4	7	2	3
,, x B.37261	30	3	10	2	7
,, x B.38192	310	20	6	11	4
,, x B.45105	4	1	25	—	—
,, x B.40255	80	3	4	2	3
,, x B.42231	100	5	5	4	4
,, x Co.290	230	12	5	9	4
,, x Co.419	80	4	5	2	3
B.34102 x B.3337	80	4	5	1	1
,, x B.34104	160	13	8	10	6
B.35197 x B.3337	60	3	5	2	3
,, x B.34104	160	5	3	1	1
,, x B.41227	135	9	7	4	3
,, x B.42231	100	6	6	3	3
B.35206 x B.34104	60	4	7	—	—
,, x P.O.J.2878	120	4	3	2	2
B.35207 x B.34104	100	8	8	2	2
,, x B.4098	100	6	6	2	2
,, x P.O.J.2878	326	17	5	11	3
B.35247 x B.3337	120	14	12	5	4
,, x B.34104	120	3	3	2	2
,, x B.40175	20	4	20	2	10
,, x B.41227	220	14	6	8	4
B.37161 x B.3337	90	4	4	2	2
,, x B.34104	190	18	9	9	5
,, x B.4098	100	9	9	5	5
,, x B.39274	80	7	9	5	6
,, x B.4454	10	3	30	1	10
B.37161 x Co.290	150	9	6	—	—
,, x P.O.J.2878	55	4	7	2	4
,, x Co.419	100	10	10	6	6
B.37172 x B.34104	120	8	7	2	2
,, x B.37193	90	3	3	2	2
,, x B.4098	80	4	5	2	3
,, x B.41211	100	18	18	12	12
,, x B.43337	60	2	3	1	2
,, x B.4454	25	2	8	1	4
,, x B.45266	29	3	10	2	7
,, x Co.290	140	—	—	—	—
B.38203 x B.603	40	—	—	—	—
,, x B.34104	150	2	1	1	1
,, x B.41211	80	3	4	—	—
B.38233 x B.603	60	2	3	1	2
,, x B.34104	120	4	3	2	2
,, x B.41211	174	8	5	4	2
B.39157 x Co.290	6	1	17	—	—
B.39240 x B.34104	24	2	8	1	4
B.39254 x B.37175	10	1	10	1	10
B.4092 x B.37193	13	1	8	—	—
B.4094 x B.37193	40	5	13	1	3
B.4096 x B.35187	8	1	13	—	—
B.40272 x B.37193	80	7	9	5	6
,, x B.41211	60	5	8	3	5
,, x Co.290	80	5	6	4	5

TABLE III—*Concluded*

CROSS	No. of Seedlings Cut	No. Field Selected	% Field Selection	No. Final Selection	% Final Selection
B.4111 x B.34104	100	6	6	1	1
,, x B.4098	155	9	6	7	5
B.4145 x B.34104	120	14	12	5	4
,, x B.35269	5	3	60	2	40
,, x B.37193	135	22	16	13	10
,, x B.4098	455	46	10	26	6
,, x B.41211	225	21	9	17	8
,, x B.4226	50	4	8	2	4
,, x B.42114	100	4	4	2	2
,, x B.42231	173	12	7	3	2
,, x Co.419	50	2	4	1	2
B.41104 x B.39246	50	2	4	—	—
B.42304 x B.37193	100	13	13	9	9
,, x B.4098	150	9	6	6	4
B.4362 x B.34104	100	9	9	6	6
,, x B.39274	90	8	9	4	4
,, x B.40175	59	8	13	3	5
,, x B.41211	80	7	9	4	5
,, x B.43391	20	2	10	1	5
B.4457 x B.603	60	—	—	—	—
B.44132 x Ba.6032	15	1	7	—	—
B.44261 x B.39156	130	6	5	—	—
B.44341 x B.3337	80	7	9	6	8
B.4586 x B.4098	50	2	4	1	2
B.4587 x B.603	50	6	12	4	8
B.45170 x B.41227	80	6	8	4	5
B.45220 x B.4098	40	2	5	2	5
Co.421 x B.34104	225	11	5	1	—
,, x B.37193	100	3	3	3	3
,, x B.4098	140	8	6	5	4
,, x B.41211	400	34	9	23	6
,, x B.41227	157	8	5	5	3
C.H.64/21 x B.4098	21	1	5	—	—
TOTAL	9,251	659	—	347	—

TABLE IV

First Year Seedlings—Short Season Trial B.51′ Series Field and Final Selections

CROSS	No. of Seedlings Cut	No. Field Selected	% Field Selection	No. Final Selection	% Final Selection
B.3439 x Co.290	200	5	3	3	2
B.34102 x B.4098	200	5	3	2	1
B.37172 x B.4098	200	7	4	4	2
B.4145 x B.4098	300	13	4	5	2
B.42304 x B.41227	200	9	5	4	2
B.43283 x B.41227	200	12	6	2	1
Co.421 x B.34104	200	8	4	3	2
,, x B.4098	100	7	7	2	2
,, x B.41211	200	10	5	3	2
,, x B.41227	200	11	6	3	2
TOTALS	2,000	87	—	31	—

As a result of these trials, it has been decided not to repeat any of the following crosses, as the percentage number of seedlings selected from their progenies is not sufficiently large.

B.34102 x B.3337	B.38203 x B.603	B.4145 x B.42231
B.35197 x B.34104	B.38203 x B.34104	B.4145 x Co.419
B.35206 x B.34104	B.38203 x B.41211	B.41104 x B.39246
B.35207 x B.34104	B.38233 x B.603	B.4457 x B.603
B.35207 x B.4098	B.38233 x B.34104	Co.421 x B.34104
B.35247 x B.34104	B.38233 x B.41211	Co.421 x B.41227
B.37161 x Co.290	B.4111 x B.34104	C.H.64/21 x B.4098
B.37172 x Co.290	B.4145 x B.42114	——

(v) PROGRESS WITH SEEDLINGS OF THE B.50′ SERIES

The three hundred and eighty-two selections of this series were multiplied at Codrington, and in October 1950, a minor selection reduced this number to two hundred and sixteen. The selected seedlings were planted in the Central Sugar Cane Breeding Station's Second Year Seedling Trials at the low rainfall station, Codrington, (2 trials), and in duplicate trials at the high rainfall stations, Andrews and Pool. In addition, a short season trial including those seedlings selected for early maturity was planted at Codrington in May 1951. This trial will be irrigated as necessary, and will be cut at the end of the next crop season.

(vi) PROGRESS WITH SEEDLINGS OF THE B.49′ SERIES

The selected seedlings of this series were planted in the Central Sugar Cane Breeding Station's Second Year Seedling Trials at the low rainfall station, Codrington, (2 trials), and at the high rainfall stations, Henley and Easy Hall in November 1949. These trials were cut as plant cane during the past crop season, when thirty-two selections were made. Three of these were selected for the Breeding Plots at Groves only. Some will be tested further in Barbados and, in October 1951, they will be sent to the various Colonies for which they were selected.

The performances of the standard varieties together with those of the selected seedlings are given in Tables V and VI.

Table V

B.49′ Series—Second Year Seedling Trials—Plant Canes

Estates and Dates of Cutting :— Codrington—21st — 23rd February, 1951
Henley—2nd — 5th April, 1951

(Figures represent the mean of 3 plots of 9 stools each)

Variety	Parentage	No. of Canes (Rotten)		% Arrowing		Z.H.R. Brix		Weight Tons Cane per Acre	
		Codrington	Henley	Codrington	Henley	Codrington	Henley	Codrington	Henley
GROUP I									
B.37161 ...	Standard ...	111(5)	154(6)	19	61	20.1	20.2	41.18	50.48
B.4098 ...	Standard ...	123(3)	143(4)	12	56	21.5	19.8	37.24	52.72
B.41211 ...	Standard ...	127(4)	94(39)	15	13	20.7	20.2	43.42	* 37.07
B.4906 ...	B.3439 x B.40123	150(2)	196(3)	—	13	22.0	21.4	40.00	58.14
GROUP II									
B.37161 ...	Standard ...	119(3)	143(5)	26	45	20.2	20.2	40.28	52.63
B.4098 ...	Standard ...	121(6)	153(9)	27	48	21.2	21.4	37.15	52.89
B.41211 ...	Standard ...	133(4)	115(32)	6	35	20.4	20.5	41.61	* 41.37
B.4942 ...	B.37161 x B.4098	121(4)	160(5)	4	28	21.6	20.6	40.00	56.59
B.4956 ...	„ x „	102(6)	134(16)	—	9	20.6	18.4	44.80	59.43
B.4966 ...	B.45170 x B.4098	109(5)	184(4)	4	20	20.9	18.6	41.18	53.58
GROUP III									
B.37161 ...	Standard ...	100(5)	141(4)	26	72	21.0	19.7	35.02	51.94
B.4098 ...	Standard ...	119(3)	153(12)	5	51	21.4	20.2	31.73	45.24
B.41211 ...	Standard ...	108(5)	109(53)	11	42	20.9	20.3	37.05	* 35.43
B.4995 ...	B.34102 x B.4098	101(4)	120(5)	27	75	22.3	21.9	33.92	48.59
GROUP IV									
B.37161 ...	Standard ...	101(7)	140(8)	11	38	20.7	18.9	36.67	41.37
B.4098 ...	Standard ...	107(4)	144(10)	3	60	21.3	21.0	31.92	45.32
B.41211 ...	Standard ...	93(10)	84(56)	16	35	19.9	20.3	27.65	* 33.55
B.49122 ...	B.35218 x B.4098	93(2)	158(9)	—	31	20.1	19.1	29.64	57.45
B.49125 ...	B.35247 x B.3337	115(7)	157(2)	28	44	17.9	16.8	33.82	50.83
GROUP V									
B.37161 ...	Standard ...	89(2)	126(7)	9	48	20.4	20.1	32.59	36.64
B.4098 ...	Standard ...	131(2)	133(6)	17	56	22.5	21.2	34.92	39.90
B.41211 ...	Standard ...	120(4)	126(39)	17	38	20.5	20.6	36.01	* 30.03
B.49166 ...	B.38233 x B.34104	124(2)	143(7)	1	27	20.2	20.4	32.59	43.17
GROUP VI									
B.37161 ...	Standard ...	108(1)	149(5)	17	48	20.9	19.7	34.58	52.72
B.4098 ...	Standard ...	140(2)	154(2)	9	51	22.4	20.8	35.15	54.35
B.41211 ...	Standard ...	126(3)	105(25)	16	30	20.6	20.7	34.01	* 37.32
B.49186 ...	B.42279 x B.37193	79(1)	134(2)	—	5	21.5	20.7	25.18	51.34
GROUP VII									
B.37161 ...	Standard ...	102(3)	148(5)	17	57	21.6	19.9	33.54	53.75
B.4098 ...	Standard ...	143(2)	162(2)	19	75	22.7	20.8	44.37	53.20
B.41211 ...	Standard ...	125(4)	113(30)	13	47	20.8	20.5	37.62	* 36.72
B.49197 ...	B.43283 x B.41227	161(0)	195(5)	1	19	20.5	20.0	36.29	56.33
B.49198 ...	„ x „	128(1)	146(1)	—	2	20.7	19.7	34.68	54.44
GROUP VIII									
B.37161 ...	Standard ...	83(6)	134(9)	10	48	20.8	19.3	27.93	45.67
B.4098 ...	Standard ...	103(1)	139(5)	20	69	22.5	20.6	27.65	47.90
B.41211 ...	Standard ...	†52(0)	88(32)	—	31	20.6	20.3	18.24	* 34.23
B.49229 ...	B.34102 x B.37193	121(3)	147(2)	1	3	22.2	21.1	33.92	47.21

† Plots damaged by villagers.
* Plots heavily damaged by rats.

TABLE VI

B.49' Series—Second Year Seedling Trials—Plant Canes

Estates and Dates of Cutting :— Codrington—16th—20th February, 1951
Clifton Hall—27th—30th March, 1951

(Figures represent the mean of 3 plots of 9 stools each)

VARIETY	PARENTAGE	No. of Canes (Rotten)		% Arrowing		Z.H.R. Brix		Weight Tons Cane per Acre	
		Codrington	Clifton Hall	Codrington	Clifton Hall	Codrington	Clifton Hall	Codrington	Clifton Hall
GROUP IX									
B.37161 ...	Standard ...	105(5)	182(10)	22	47	21.1	17.9	36.58	65.02
B.4098 ...	Standard ...	135(6)	186(10)	8	51	21.9	19.2	42.47	60.03
B.41211 ...	Standard ...	112(2)	181(18)	7	13	21.5	18.7	31.35	63.04
B.49257 ...	B.37161 x B.4098	101(5)	158(14)	—	11	20.0	18.5	51.68	68.71
B.49273 ...	B.40272 x B.4098	115(7)	151(21)	7	6	22.1	19.5	29.93	49.97
GROUP X									
B.37161 ...	Standard ...	110(5)	154(10)	56	35	20.8	17.7	41.61	58.22
B.4098 ...	Standard ...	121(4)	127(17)	22	52	21.8	19.3	36.20	39.22
B.41211 ...	Standard ...	130(6)	153(30)	12	6	21.0	18.3	43.04	64.41
B.49281 ...	B.4457 x P.O.J.2878	95(3)	158(11)	48	39	20.8	19.3	31.07	50.91
B.49301 ...	B.3365 x B.34104	130(5)	180(16)	—	3	20.8	17.1	37.81	62.52
GROUP XI									
B.37161 ...	Standard ...	105(3)	157(15)	11	19	21.3	16.9	35.53	55.64
B.4098 ...	Standard ...	144(2)	173(16)	18	28	22.4	17.6	42.84	52.89
B.41211 ...	Standard ...	133(2)	163(17)	9	9	20.9	18.0	41.20	61.32
B.49309 ...	B.34102 x B.34104	112(2)	155(23)	46	23	22.1	17.5	29.73	54.78
B.49311 ...	,, x ,,	114(2)	155(14)	—	34	20.9	18.6	33.16	58.52
GROUP XII									
B.37161 ...	Standard ...	112(5)	146(12)	33	42	20.6	17.0	35.91	52.73
B.4098 ...	Standard ...	130(3)	132(18)	21	33	22.0	19.5	38.10	43.52
B.41211 ...	Standard ...	120(0)	149(15)	21	19	21.4	18.6	41.42	60.20
B.49346 ...	B.35247 x B.4306	117(8)	174(16)	28	43	20.8	16.9	35.72	59.86
GROUP XIII									
B.37161 ...	Standard ...	113(6)	160(12)	24	17	20.7	17.8	38.48	48.93
B.4098 ...	Standard ...	149(3)	162(15)	24	23	22.1	18.4	45.89	46.96
B.41211 ...	Standard ...	130(6)	164(37)	8	11	20.8	17.5	44.75	53.15
B.49353 ...	B.37161xP.O.J 2878	114(3)	149(13)	25	18	21.7	18.5	37.05	49.45
B.49354 ...	,, x ,,	147(3)	179(9)	12	60	22.3	18.3	32.87	46.12
B.49355 ...	,, x ,,	112(5)	165(10)	—	8	21.6	18.4	36.01	58.05
B.49372 ...	B.38272 x B.4098	110(8)	167(15)	50	30	18.6	17.3	30.40	47.25
B.49376 ...	B.40272 x Co.290	99(6)	144(12)	44	26	20.5	18.3	41.61	51.94
B.49377 ...	,, x ,,	159(4)	167(12)	74	48	21.5	18.5	43.51	58.39
GROUP XIV									
B.37161 ...	Standard ...	104(4)	151(12)	38	49	21.3	17.4	35.15	50.48
B.41211 ...	Standard ...	130(2)	162(13)	21	42	20.5	19.3	40.19	51.69
B.49378 ...	B.41277 x B.37193	129(8)	194(10)	62	39	20.1	17.1	37.43	60.37
B.49380 ...	B.43253 x B.39274	156(6)	189(11)	43	45	20.7	18.0	37.91	52.20
B.49388 ...	B.4455 x B.4098	91(8)	162(15)	49	24	20.2	17.6	30.40	50.05
B.49396 ...	Co.421 x B.45237	132(4)	200(4)	22	71	21.7	18.4	33.82	54.70
B.49397 ...	,, x ,,	133(3)	173(4)	60	85	21.2	17.4	28.98	49.70
B.49399 ...	,, x ,,	112(6)	204(15)	87	67	20.0	17.6	22.42	49.88

(vii) PROGRESS WITH SEEDLINGS OF THE B.49′ SERIES — SHORT SEASON SELECTIONS

These seedlings were planted in a Short Season Second Year Seedling Trial under irrigation at Codrington in June, 1950, and were cut early in May, 1951. In addition to the seedlings which were selected from the long season trials, (see Tables V and VI above), four seedlings were selected from this trial. These will be sent to British Guiana next October.

The performances of the standard varieties together with those of the selected seedlings are given in Table VII.

TABLE VII

B.49′ Series—Second Year Seedling Trials—Plant Canes Short Season Trial—Irrigated

Codrington—Planted 14th June, 1950—Cut 7th and 8th May, 1951

(Figures represent the mean of three plots of nine stools each)

VARIETY	PARENTAGE	No. of Canes (Rotten)	% Arrowing	Z.H.R. Brix	Weight Tons Cane per Acre
B.37161	Standard	64(0)	—	20.7	20.24
B.4098	Standard	109(0)	—	20.6	29.26
B.4905	B.3439 x B.40123 ...	103(0)	—	21.2	36.77
B.4945	B.37161 x B.4098 ...	128(1)	—	21.9	38.95
B.4968	Co.421 x B.43290 ...	138(0)	—	21.6	38.57
B.4970	Co.421 x B.43375 ...	111(0)	—	19.9	40.28

(viii) PROGRESS WITH SEEDLINGS OF THE B.48′ SERIES

The seedlings of this series were cut as first ratoons during the past crop season in the Central Sugar Cane Breeding Station's Second Year Seedling Trials at the high rainfall stations, Bowmanston and Hothersal. From the results of these trials it was possible to discard six varieties on their ratoon performances.

The performances of the selected seedlings and the standard varieties are given in Tables VIII and IX.

The seedlings of this series which appeared to show most promise under Barbados conditions were planted in Third Year Seedling Trials in November, 1950.

Table VIII

Second Year Seedling Trials—First Ratoons

Bowmanston—Cut 1st — 3rd May, 1951

(Figures represent the mean of three plots of nine stools each)

Variety	Parentage	No. of Canes (Rotten)	% Arrowing	Z.H.R. Brix	Weight Tons Cane per Acre
GROUP II					
B.37161	Standard	139(6)	27	21.3	52.46
B.4098	Standard	156(6)	35	22.7	54.64
B.4847	B.39207 x B.41211 ...	122(5)	40	19.6	56.59
B.4851	B.40105 x B.37193 ...	138(7)	15	21.0	48.16
GROUP III					
B.37161	Standard	136(8)	25	20.8	49.88
B.4098	Standard	159(7)	24	21.3	52.22
B.4867	B.3354 x B.4098 ...	101(3)	22	21.1	43.95
B.4881	B.3439 x B.3337 ...	119(4)	22	21.0	48.07
B.4888	„ x „ ...	110(4)	20	20.3	42.31
GROUP IV					
B.37161	Standard	130(8)	34	20.2	51.43
B.4098	Standard	159(6)	19	20.0	53.49
B.4893	B.3439 x B.3337 ...	142(5)	14	20.5	52.29
B.4895	„ x „ ...	166(3)	51	21.6	41.19
B.48106	B.3439 x Co.419 ...	149(5)	1	22.1	41.80
B.48117	„ x „ ...	138(1)	25	19.4	36.89
GROUP V					
B.37161	Standard	140(9)	15	20.1	55.04
B.4098	Standard	154(10)	23	21.9	51.43
B.48125	B.34102 x B.3337 ...	126(23)	22	20.4	41.19
B.48126	„ x „ ...	106(4)	28	21.0	41.19
GROUP VI					
B.37161	Standard	139(8)	25	20.1	48.85
B.4098	Standard	169(8)	24	21.9	50.91
B.48165	B.35197 x B.40256 ...	140(22)	23	19.1	42.48
B.48177	B.35197 x B.42231 ...	131(18)	22	20.5	42.74
B.48179	„ x „ ...	149(17)	22	18.4	50.74
GROUP VIII					
B.37161	Standard	122(8)	16	19.6	44.98
B.4098	Standard	143(10)	15	20.5	46.01
B.48209	B.35218 x B.41276 ...	121(10)	—	18.4	41.45
B.48228	B.35247 x B.3337 ...	167(10)	10	18.3	48.33
B.48231	„ x „ ...	181(5)	24	19.3	49.71

Table IX

Second Year Seedling Trials—First Ratoons

Hothersal—Cut 19th—23rd April, 1951

(Figures represent the mean of three plots of nine stools each)

Variety	Parentage	No. of Canes (Rotten)	% Arrowing	Z.H.R. Brix	Weight Tons Cane per Acre
GROUP IX					
B.37161	Standard	134(6)	32	18.9	62.69
B.4098	Standard	193(5)	29	21.0	61.23
B.48251	B.37161 x Co.419 ...	188(4)	11	19.1	66.56
B.48259	B.38203 x B.41211 ...	134(36)	—	19.1	44.29
GROUP XI					
B.37161	Standard	145(5)	25	19.2	49.88
B.4098	Standard	156(8)	10	21.0	50.05
B.48330	B.4145 x B.4098 ...	82(21)	14	20.1	33.02
B.48332	„ x „ ...	166(7)	28	18.9	36.98
GROUP XII					
B.37161	Standard	142(5)	14	19.4	66.31
B.4098	Standard	174(5)	26	20.3	52.12
B.48350	B.42279 x B.41276 ...	213(11)	40	17.9	46.27
B.48351	B.42304 x B.37193 ...	152(2)	4	19.1	53.58
B.48357	B.4455 x B.H.10(12) ...	99(5)	29	17.7	37.75
B.48360	B.4457 x B.4098 ...	72(8)	9	18.8	28.96
GROUP XIII					
B.37161	Standard	123(4)	31	19.8	46.96
B.4098	Standard	146(12)	25	20.9	40.76
B.48372	Co.421 x B.4098 ...	153(4)	30	20.9	47.04
B.48375	Co.421 x B.41211 ...	151(6)	80	21.1	39.56
B.48384	„ x „ ...	185(14)	6	20.8	41.45
GROUP XIV					
B.37161	Standard	110(4)	20	18.9	40.42
B.4098	Standard	163(7)	22	21.2	48.25
B.48392	Co.421 x B.41211 ...	141(5)	6	19.8	48.33
B.37161(a)	Standard	125(8)	28	19.5	44.98

(ix) THIRD YEAR SEEDLING TRIALS AND SELECT SEEDLING TRIALS B.47′ AND EARLIER SERIES

A. The Seedlings Tested

1. *Third Year Seedling Trials*

Plant Canes :— B.4466, B.46103, B.4738, B.4743, B.4744, B.4747, B.4764, B.4781, B.4788, B.47135, B.47147, B.47151, B.47162, B.47204, B.47214, B.47216, B.47217, B.47233, B.47258, B.47314, B.47379, B.47380, B.47397 and B.47419.

First Ratoons:— B.4502, B.4503, B.4504, B.4506, B.4556, B.4572, B.4596, B.45137, B.45151, B.45152, B.4604, B.4681, B.4691, B.46102, B.46136, B.46223, B.46232, B.46284, B.46288, B.46364, B.46394, B.46397 and S.45.

Second Ratoons:—B.4362, B.43337, B.43391, B.45188, B.45189, B.45200, B.45224, B.45267, B.45270, and B.45292.

2. *Select Seedling Trials*

First Ratoons:— B.37161, B.4098, B.41211, B.41227 and B.44341.

In addition to the seedlings mentioned in the Third Year Seedling Trials, the commercial varieties recommended for cultivation in the area of each station were included for purposes of comparison.

B. An Ecological Classification of the Trials

This classification was proposed by Turner after a study of the sugar cane soils of the British West Indies, and is based on the cultural requirements of the soil. It is as follows :—

Group I :— Soils with a natural tilth which require neither to be ploughed nor drained.

Group II :— Soils with a tilth which can be improved by ploughing, but which do not require to be drained.

(a) Low Rainfall Areas

Third Year Seedling Trials

Plant Canes ... ... Spencers

Select Seedling Trials

First Ratoons ... ... Ealing Grove

(b) Intermediate Rainfall Areas

Third Year Seedling Trials

Plant Canes ... ... Wotton and Oughterson
First Ratoons ... ... Yorkshire and Pickerings

Select Seedling Trials

First Ratoons ... ... Warrens and Small Ridge

(c) High Rainfall Areas

Third Year Seedling Trials

Plant Canes ... ... Portland and Easy Hall
First Ratoons ... ... Colleton and Kendal
Second Ratoons ... ... Portland and Claybury

Select Seedling Trials

First Ratoons ... ... Portland

Group III:— Soils which require to be drained, but are preferably left unploughed.

Group IV:— Soils with a poor natural tilth in which a tilth can be created by ploughing, but which require an elaborate system of drainage to maintain their tilth.

INTERMEDIATE RAINFALL AREAS

Third Year Seedling Trials

Plant Canes ... ... Carrington

It should be mentioned here that owing to labour troubles near the end of our crop season, it was found to be impossible to reap four ratoon Select Seedling Trials, and these accordingly had to be abandoned.

C. Rainfall during the Season

TABLE X

MONTH	1928—29 to 1947—48 (Inches)	1948—49 (Inches)	1949—50 (Inches)	1950—51 (Inches)
January	3.11	3.01	1.25	6.06
February	1.59	1.30	1.04	1.95
March	1.45	2.83	1.37	2.86
April	1.98	0.57	1.43	1.17
May	2.67	2.91	1.96	6.56
June	4.41	5.15	6.13	10.99
July	6.78	9.54	2.95	3.37
August	6.30	10.34	13.45	10.01
September	7.16	11.72	11.13	7.24
October	7.58	7.49	13.31	13.52
November	9.34	10.53	3.36	11.26
December	4.37	4.42	3.51	4.68
January	3.07	1.25	6.06	3.45
February	1.57	1.04	1.95	14.35
March	1.48	1.37	2.86	2.28
TOTALS	62.86	73.47	71.76	99.75

As will be seen from the above table, rainfall during the 1950–51 crop season was exceptionally heavy for Barbados and was also very well distributed. The heavy rainfall resulted in very heavy yields of cane, and a sugar crop which has proved to be an all time record. Heavy rainfall in January and, particularly in February, resulted in poor juices which did not recover until about the end of March. This is reflected in the sucrose in juice figures of the trials cut during this period. The heavy rains in February caused reaping operations in most parts of the Island to be temporarily suspended, as it was impossible to get loaded lorries and carts out of the fields. This held up our reaping programme for about a week. Arrowing was exceptionally heavy all over the Island, and this undoubtedly reduced the yields of nearly all varieties, some more so than others.

D. Results of the Trials

In the Third Year Seedling Trials, the following data is obtained:— (1) yield in tons cane per acre, (2) Zeiss Hand Refractometer Brix Readings, (3) Percent. sucrose in juice figures from a sixty pound cane sample taken from two of the six blocks and (4) the number of rotten canes per plot.

In the Select Seedling Plant Cane Trials, the data obtained is as follows :— (1) Tons cane per acre, (2) a complete analysis of the cane from a one hundred and twenty pound sample bundle taken from each plot, (3) a calculated figure for the yield of sucrose per acre and (4) the number of rotten canes per plot.

In the Select Seedling Ratoon Trials, a sixty pound sample bundle is taken from each plot, and the percent. sucrose in juice figures only are obtained. Otherwise, the data taken is the same as for the plant cane trials.

The results from the various soil groups are considered here.

TABLE XI

Third Year Seedling Trials—Plant Cane

Soil Type :— Group II (a) Low Rainfall

Estate:— Spencers — Cut:— 6th & 7th March, 1951

VARIETY	Tons Cane per Acre	Z.H.R. Brix	% Sucrose in Juice	No. of Rotten Canes per Plot
B.37161	43.49	21.1	18.6	7
B.4098	43.55	21.8	19.0	7
B.41211	48.77	21.5	18.5	5
B.4466	44.75	20.5	17.5	7
B.46103	38.00	21.5	19.0	10
B.4738	44.72	21.2	17.9	12
B.4743	43.02	21.6	17.9	5
B.4744	47.20	21.4	19.6	8
B.4747	47.20	21.4	18.3	15
B.4764	40.66	23.2	18.3	5
B.4781	39.71	21.0	17.5	9
B.4788	46.41	22.0	18.8	6
B.47135	42.22	19.0	17.0	7
B.47147	44.30	20.6	17.6	6
B.47151	37.54	20.9	17.4	12
B.47162	39.02	21.5	18.9	4
B.47214	45.74	20.2	15.9	5
B.47216	46.66	19.5	16.0	7
B.47217	40.52	19.4	15.9	6
B.47258	41.25	22.3	20.0	7
B.47314	38.80	21.3	19.0	3
B.47379	37.65	21.0	17.8	7
B.47380	39.05	23.6	20.2	8
B.47397	41.97	20.9	17.9	10
B.47419	40.50	21.9	19.9	11

A difference of ± 5.34 tons cane per acre between mean yields may be considered significant.

In this trial, B.4744 outyielded all of the other varieties tried, but was not significantly better than the standard varieties B.41211, B.4747, B.47216, B.4788, B.47214, B.4466, B.4738 and B.47147, which gave the next highest yields. However, none of these varieties proved to be significantly better than the two standard varieties, B.37161 and B.4098. Only three varieties, B.46103, B.47151 and B.47379 proved to be significantly poorer than B.37161 and B.4098 under these conditions, B.47419 gave a relatively poor yield of 40.50 tons cane per acre, and obviously does not like conditions in the low rainfall areas. B.47380, B.47258, B.47419, B.4744 and B.4764 had juices of very good quality in this trial, although it is considered that the canes were not fully ripe when the trial was cut.

TABLE XII

Select Seedling Trials—First Ratoons

Soil Type:— Group II(a) Low Rainfall

Estate:— Ealing Grove — Cut:— 2nd March, 1951

VARIETY	Tons Cane per Acre	% Sucrose in Juice	No. of Rotten Canes per Plot
B.37161	28.96	18.1	6
B.4098	25.84	19.4	10
B.41211	35.55	18.5	6
B.41227	29.54	19.9	8
B.44341	26.79	19.9	8

A difference of ± 3.45 tons cane per acre between the mean yields may be considered significant.

In this trial, B.41211 gave the heaviest yield of ratoon cane, significantly outyielding all the other varieties tried. This was followed by B.41227, which was significantly better than B.4098. There was little to choose between the yields of B.44341 and B.4098, neither of which appears to like the conditions of this experiment. The performance of B.41227 in this trial is rather misleading, as the variety does not normally perform well in the low rainfall areas of Barbados, and its performance in this trial can only be attributed to the exceptionally heavy rainfall experienced during the growing season.

B.41227 and B.44341 gave the best juices, followed by B.4098, but here again, it is considered that none of the varieties was fully ripe at the time the trial was cut.

TABLE XIII

Third Year Seedling Trials—Plant Canes

Soil Type:— Group II (b) Intermediate Rainfall

Estates and Dates of Cutting:— Wotton—8th and 9th March, 1951
Oughterson—12th and 13th March, 1951

VARIETY	Tons Cane per Acre		Z.H.R. Brix		% Sucrose in Juice		No. of Rotten Canes per Plot	
	Wotton	Oughterson	Wotton	Oughterson	Wotton	Oughterson	Wotton	Oughterson
B.37161 ...	43.54	41.72	21.0	19.7	17.9	17.6	14	11
B.4098 ...	40.22	43.34	21.9	21.3	18.1	18.0	11	4
B.41211 ...	52.88	49.62	20.5	20.9	18.1	18.5	8	25*
B.4466 ...	44.88	49.75	20.4	20.0	17.1	16.8	6	10
B.46103 ...	39.10	42.12	20.9	19.9	18.1	17.1	14	9
B.4738 ...	41.33	43.60	21.1	20.7	18.1	17.5	7	7
B.4743 ...	39.96	45.80	20.9	20.4	16.9	17.4	8	15
B.4744 ...	53.87	58.71	22.1	21.4	18.8	18.2	6	13*
B.4747 ...	44.56	46.71	20.5	20.1	17.3	16.4	24	30
B.4764 ...	41.09	44.77	21.9	21.3	18.7	18.3	6	11
B.4781 ...	42.80	40.85	20.4	20.6	18.0	17.9	6	13
B.4788 ...	39.71	43.80	21.4	21.3	17.8	18.2	6	11
B.47135 ...	42.40	48.20	19.5	19.4	15.1	17.6	7	6
B.47147 ...	43.51	43.95	20.7	20.4	17.3	17.3	7	6
B.47151 ...	41.55	42.68	20.7	20.4	17.8	17.5	26	22*
B.47162 ...	41.12	39.96	21.2	20.4	17.4	17.3	11	11
B.47214 ...	41.19	44.62	20.2	19.4	16.4	16.2	10	11
B.47216 ...	43.57	42.50	20.2	19.3	16.5	15.9	9	11
B.47217 ...	39.79	46.51	19.5	19.7	15.8	16.4	12	9
B.47258 ...	43.50	42.89	21.9	21.7	19.9	18.3	6	9
B.47314 ...	44.90	43.45	21.0	21.4	18.7	18.8	3	7
B.47379 ...	37.73	46.78	20.3	19.8	15.8	16.5	7	7
B.47380 ...	43.38	42.73	23.2	22.1	19.3	19.3	9	11
B.47397 ...	41.19	43.89	20.6	20.2	17.6	17.0	19	20
B.47419 ...	51.32	53.08	20.5	20.2	18.6	18.2	16	14

* *Damaged by rats*

The following differences between mean yields may be considered significant :—
Wotton ± 5.31 tons cane per acre.
Oughterson ± 5.56 „ „ „ „

At Wotton, B.4744, B.41211 and B.47419 all significantly outyielded the other varieties tried. B.4744 gave the heaviest yield of plant cane, but this cannot be shown to be significantly better than the other two varieties. B.47314, B.4466 and B.4747 gave heavier yields than the standard varieties, B.37161 and B.4098, but the differences between the mean yields failed to be significant.

B.47258, B.47380, B.47314, B.47419 and B.4744 gave juices with the best sucrose content, but none of the varieties was fully ripe at the time the trial was cut. The juices of B.47135, B.47217 and B.47379 were very poor in sucrose.

At Oughterson, B.4744 gave by far the heaviest yield of plant cane, significantly outyielding all of the other varieties tried. B.47419 gave the next heaviest yield, but was not significantly better than B.41211, B.4466 and B.47135. B.41211 and B.4466 proved to be significantly better than the standard varieties, B.37161 and B.4098. B.47379, B.4747, B.47217 and B.4743 also gave heavy yields of plant cane.

B.47380, B.47314, B.41211, B.47258, B.4764, B.4788, B.47419 and B.4744 had the best quality juice, while B.47217 and B.47379 had the poorest. It would appear from the results that the variety B.41211 was approaching maturity in this trial when it was cut, as the sucrose in juice figures are much higher than those of B.37161 and B.4098.

TABLE XIV

Third Year Seedling Trials—First Ratoons

Soil Type:— Group II (b) Intermediate Rainfall

Estates and Dates of Cutting:— Yorkshire — 9th and 10th April, 1951
Pickerings—12th and 13th February, 1951

VARIETY	Tons Cane per Acre		Z.H.R. Brix		% Sucrose in Juice		No. of Rotten Canes per Plot	
	York-shire	Picker-ings	York-shire	Picker-ings	York-shire	Picker-ings	York-shire	Picker-ings
B.37161 ...	44.42	38.56	20.9	20.6	18.6	17.6	6	5
B.4098 ...	44.83	41.56	22.5	21.3	19.2	18.5	7	10
B.4502 ...	36.12	29.37	21.3	20.8	18.7	18.3	7	12
B.4503 ...	42.41	39.06	18.0	19.1	15.4	15.8	6	9
B.4504 ...	35.07	29.47	20.3	20.1	18.0	17.6	14	61*
B.4506 ...	37.49	30.37	20.8	19.9	17.1	16.8	18*	7
B.4556 ...	31.05	22.58	21.4	21.2	20.5	19.0	44*	39
B.4572 ...	28.45	27.47	21.3	21.2	19.2	18.6	9	18
B.4596 ...	42.51	33.63	20.1	19.7	17.2	15.9	11	3
B.45137 ...	36.06	34.13	21.7	21.4	19.6	18.3	18	5
B.45151 ...	46.28	45.35	22.6	21.8	20.4	19.6	6	10
B.45152 ...	51.04	42.41	21.8	21.6	20.0	19.2	4	5
B.4604 ...	42.82	35.15	20.6	19.7	17.1	16.6	8	17
B.4681 ...	38.13	34.39	22.0	21.5	19.3	17.9	22*	30
B.4691 ...	49.87	44.32	20.4	20.1	17.9	17.2	7	14
B.46136 ...	36.15	31.99	21.3	21.2	18.6	17.8	6	6
B.46223 ...	49.91	49.87	21.2	21.0	18.4	17.0	9	12
B.46232 ...	34.13	34.21	19.4	19.1	16.9	16.2	14	11
B.46284 ...	33.03	32.13	21.4	21.2	19.7	18.1	6	9
B.46288 ...	35.67	35.68	21.5	21.2	17.9	18.2	9	16
B.46364 ...	43.56	45.25	21.3	20.5	18.9	17.7	2	3
B.46394 ...	33.50	32.72	22.8	21.6	19.7	18.9	6	10
B.46397 ...	50.19	49.55	21.1	20.4	17.7	16.3	13*	9
S.45 ...	38.98	30.36	21.0	20.7	18.0	16.9	6	8

* *Damaged by rats*

The following differences between mean yields may be considered significant :—
Yorkshire ± 6.04 tons cane per acre.
Pickerings ± 5.74 ,, ,, ,, ,,

At Yorkshire, B.45152 gave the heaviest yield of ratoon cane, and was significantly better than the standard varieties, B.37161 and B.4098. However, it holds its trash so firmly that it cannot be considered for commercial purposes unless the crop is normally burnt prior to cutting. B.46397, B.46223, B.4691 and B.45151 also gave heavier yields of cane than the standards, but the differences between their mean yields cannot be shown to be significant.

B.4556, B.45151 and B.45152 had the best juices, while B.4503 and B.46232 had the poorest.

At Pickerings, the trial was cut early in the crop season, and none of the varieties was ripe. B.46223 and B.46397 gave the heaviest yields of ratoon cane, and these significantly outyielded the standard varieties, B.37161 and B.4098. B.45151, B.46364, B.4691 and B.45152 all outyielded the standard varieties but not by significant amounts.

B.45151 gave the best juice of the lot, and this was excellent considering the time of cutting and the poor ripening conditions obtaining. Other varieties giving good juices were B.45152, B.4556, B.46394, B.4572 and B.4098. B.4503 and B.4596 gave the poorest juices.

TABLE XV

Select Seedling Trials — First Ratoons

Soil Type:— Group II (b) Intermediate Rainfall

Estates and Dates of Cutting:— Warrens — 5th March, 1951
Small Ridge — 11th April, 1951

VARIETY	Tons Cane per Acre		% Sucrose in Juice		No. of Rotten Canes per Plot	
	Warrens	Small Ridge	Warrens	Small Ridge	Warrens	Small Ridge
B.37161 ...	37.00	33.37	17.0	19.1	11	13
B.4098 ...	33.56	35.23	17.4	19.4	12	11
B.41211 ...	47.29	42.09	16.8	19.2	12	11
B,41227 ...	42.02	36.74	17.6	19.4	21	13
B.44341 ...	33.61	28.48	18.2	19.4	18	8

The following differences between mean yields may be considered significant :—
± 3.79 tons cane per acre at Warrens.
± 4.70 tons cane per acre at Small Ridge.

At both Warrens and Small Ridge, B.41211 gave the heaviest yield of first ratoon cane and was significantly better than any of the other varieties tried. B.41227 gave the next heaviest yield of ratoon cane, and proved to be significantly better than B.37161, B.4098 and B.44341 at Warrens, and better than B.44341 at Small Ridge. B.37161 was significantly better than B.4098 and B.44341 at Warrens. B.4098 and B.37161 were both significantly better than B.44341 at Small Ridge.

At Warrens, B.44341 gave the best quality juice, followed by B.41227, while the juice quality of B.41211 was the poorest. None of the varieties was ripe when this trial was cut.

At Small Ridge, all of the varieties were more or less ripe, and there was little difference between the juice qualities of any of them.

Table XVI

Third Year Seedling Trials—Plant Cane

Soil Type:— Group II (c) High Rainfall

Estates and Dates of Cutting:— Portland — 5th and 6th February, 1951
Easy Hall — 14th and 15th March, 1951

Variety	Tons Cane per Acre		Z.H.R. Brix		% Sucrose in Juice		No. of Rotten Canes per Plot	
	Portland	Easy Hall	Portland	Easy Hall	Portland	Easy Hall	Portland	Easy Hall
B.37161 ...	46.71	45.60	18.2	18.3	14.7	15.4	15	11
B.4098 ...	50.91	47.78	19.4	19.0	16.4	16.2	14	8
B.41211 ...	43.97	56.73	19.0	18.8	15.8	13.7	61*	23
B.4466 ...	51.72	49.15	18.0	19.0	16.0	15.7	12	8
B.46103 ...	51.16	43.94	18.2	19.3	15.6	16.6	12	10
B.4738 ...	50.34	47.29	18.7	18.5	15.5	16.2	11	9
B.4743 ...	47.78	49.14	18.7	18.4	15.4	15.1	8	7
B.4744 ...	54.42	76.05	18.3	19.5	15.5	16.5	14	12
B.4747 ...	54.63	51.03	18.3	18.6	14.9	15.9	20	14
B.4781 ...	52.92	53.64	19.0	18.5	16.9	15.7	13	11
B.4788 ...	50.99	45.63	19.1	18.3	15.4	16.2	11	11
B.47135 ...	56.28	58.30	17.3	17.4	14.9	12.9	12	8
B.47151 ...	47.19	48.03	18.0	18.9	15.5	15.7	13	23
B.47162 ...	48.37	52.74	18.8	18.0	15.6	15.4	9	9
B.47204 ...	56.54	53.42	18.7	18.0	14.7	14.9	20	20
B.47214 ...	45.45	45.01	17.5	17.7	14.0	13.7	24	18
B.47216 ...	41.12	53.67	17.0	17.2	13.1	12.5	14	12
B.47217 ...	44.36	52.40	17.2	17.5	13.3	14.1	19	18
B.47233 ...	54.00	48.03	19.1	19.0	14.7	15.1	20	15
B.47258 ...	35.59	53.07	18.8	19.2	15.8	16.6	34*	9
B.47314 ...	49.53	50.38	18.7	19.1	15.4	17.1	10	7
B.47379 ...	44.87	59.35	17.9	19.0	14.4	15.8	15	8
B.47380 ...	48.22	49.51	20.2	20.1	17.1	17.6	17	7
B.47397 ...	51.82	51.88	18.8	18.8	15.2	15.3	14	15
B.47419 ...	54.36	65.39	17.7	18.7	15.4	16.4	25	16

* *Damaged by rats*

The following differences between mean yields may be considered significant :—
Portland ± 6.45 tons cane per acre.
Easy Hall ± 5.48 „ „ „ „

The trial at Portland was cut very early in the crop season, and juices were consequently very poor. Rats caused considerable damage in this trial, particularly in the plots of B.41211 and B.47258. B.47204 and B.47135 gave the heaviest yields of plant cane but these were not significantly better than B.4098, B.4466, B.46103, B.4738, B.4744, B.4747, B.4781, B.4788, B.47233, B.47397 and B.47419. B.47135 has a very poor juice, and is very difficult to trash, so it is ruled out for commercial purposes. The juice quality of B.47204 was also very poor. B.4744, B.4747, B.47233 and B.47419 gave heavy yields, and B.4744 and B.47419 appear to have fairly good juices under the circumstances. The best juice quality was given by B.47380, which also gave a fairly good yield of plant cane.

As at Portland, the trial at Easy Hall had to be cut long before any of the varieties were ripe. B·4744 gave the heaviest yield of plant cane, greatly and significantly exceeding any of the other varieties. The juice quality of this variety was also better than those of the standard varieties. B.47419 gave the next heaviest yield of plant cane, and this was significantly better than any of the other varieties with the exception of B.4744. Here again, the juice quality of this variety was better than those of the standard varieties. Other varieties which gave heavy yields of plant cane were:— B.41211, B.4747, B.4781, B.47135, B.47162, B.47204, B.47216, B.47217, B.47258, B.47314, B.47379 and B.47397.

The best juice quality was given by B.47380. Other varieties which gave fairly good juices were B.4098, B.46103, B.4738, B.4744, B.4788, B.47258, B.47314 and B.47419.

Table XVII

Third Year Seedling Trials—First Ratoons

Soil Type:— Group II (c) High Rainfall

Estates and Dates of Cutting:— Colleton—13th and 16th April, 1951
Kendal—24th and 25th April, 1951

Variety	Tons Cane per Acre		Z.H.R. Brix		% Sucrose in Juice		No. of Rotten Canes per Plot	
	Colleton	Kendal	Colleton	Kendal	Colleton	Kendal	Colleton	Kendal
B.37161 ...	50.39	53.89	19.9	20.8	17.2	17.1	9	12
B.4098 ...	51.68	51.56	21.4	21.2	17.9	18.4	9	8
B.4502 ...	43.29	42.40	21.0	21.5	18.9	18.2	14	16
B.4503 ...	48.29	51.15	19.9	18.6	16.6	15.8	12	13
B.4504 ...	51.21	51.61	19.3	19.7	16.2	15.9	16	10
B.4506 ...	46.92	46.53	19.4	18.8	17.2	16.4	9	12
B.4556 ...	46.09	42.86	20.7	20.5	17.9	17.7	35	17
B.4572 ...	39.15	41.87	20.8	20.6	17.9	18.4	17	10
B.4596 ...	49.64	55.32	18.3	18.6	15.5	16.7	11	20
B.45137 ...	47.05	51.39	20.9	20.0	16.4	18.4	16	15
B.45151 ...	60.47	61.14	21.5	21.3	19.2	18.4	7	7
B.45152 ...	59.71	56.34	20.9	20.5	18.9	18.2	9	8
B.4604 ...	48.64	56.75	19.1	19.5	16.5	17.2	11	6
B.4681 ...	51.12	54.39	20.2	20.4	17.8	18.3	41	24
B.4691 ...	51.94	55.83	18.4	19.3	16.4	16.4	42	8
B.46102 ...	—	50.21	—	19.9	—	16.1	—	16
B.46136 ...	43.29	52.72	20.0	20.5	17.3	17.6	9	9
B.46223 ...	64.76	62.12	21.0	20.6	17.7	17.7	15	31
B.46232 ...	43.97	43.16	19.1	18.2	16.6	15.3	14	18
B.46284 ...	46.40	39.67	19.8	19.9	18.0	16.8	8	7
B.46288 ...	46.97	46.14	20.0	19.8	17.2	16.4	13	13
B.46364 ...	61.53	57.52	20.1	20.1	17.0	18.0	5	6
B.46394 ...	44.23	39.06	20.6	20.5	18.4	18.1	11	8
B.46397 ...	63.91	—	20.3	—	17.2	—	14	—
S.45 ...	45.78	38.17	20.5	20.4	16.5	17.4	9	12

The following differences between mean yields may be considered significant :—

Colleton ± 5.46 tons cane per acre.
Kendal ± 6.59 „ „ „ „

At Colleton, B.46223 gave the heaviest yield of ratoon cane followed by B.46397, B.46364, B.45151 and B.45152. All of these varieties significantly outyielded the standards, but the differences between their mean yields proved to be insignificant. B.46223 and B.46397 may be the same as B.41211, but this point has not yet been finally decided. B.46364 ratooned exceptionally well, as did B.45151. The variety B.45152, as has been reported previously, retains its trash too firmly to be used for commercial cultivation in Barbados.

B.45151 had the best juice quality, followed by B.4502 and B.45152. The juice qualities of B.46223, B.46397 and B.46364 were no better than that of B.37161, the poorer of the standard varieties.

At Kendal, B.46223 gave the heaviest yield of ratoon cane, followed by B.45151, B.46364, B.4604, B.45152, B.4691, B.4596 and B.4681. All of these varieties gave heavier yields than the standard varieties, B.37161 and B.4098. However, of these, only B.46263 and B.45151 proved to be significantly better. B.45151, B.4098, B.4572 and B.45137 all gave the same percentage sucrose in juice, 18.4%, and this proved to be the highest percentage recorded from this trial. The juice of B.46223 was about one-half percent. better in sucrose than that of B.37161, but even at this stage of the crop season, none of the varieties could be said to be really ripe.

TABLE XVIII

Third Year Seedling Trials—Second Ratoons

Soil Type:— Group II (c) High Rainfall

Estates and Dates of Cutting:— Portland—7th and 8th February, 1951
Claybury—20th and 21st March, 1951

VARIETY	Tons Cane per Acre		Z.H.R. Brix		% Sucrose in Juice		No. of Rotten Canes per Plot	
	Portland	Claybury	Portland	Claybury	Portland	Claybury	Portland	Claybury
B.37161 ...	36.26	29.79	19.2	19.8	16.5	16.3	6	13
B.37161 (A)	37.99	36.14	19.0	19.2	16.3	16.1	9	13
B.37161 (B)	40.70	—	18.7	—	15.8	—	9	—
B.4098 ...	*39.29	41.77	19.7	20.5	16.6	16.9	9	11
B.4098 (A)	45.64	—	20.0	—	16.6	—	7	—
B.41211 ...	45.40	45.75	18.2	19.7	15.5	15.7	9	15
B.41211 (A)	45.44	—	18.2	—	15.0	—	7	—
B.41227 ...	53.78	49.24	19.1	19.5	17.3	16.9	6	7
B.41227 (A)	53.20	—	19.5	—	15.8	—	8	—
B.41227 (B)	55.54	—	19.7	—	16.3	—	7	—
B.4362 ...	42.29	30.68	20.8	21.8	17.9	19.3	8	29
B.43337 ...	61.72	46.78	19.1	19.2	16.2	15.8	8	9
B.43391 ...	54.69	53.90	18.2	19.6	15.7	16.5	6	9
B.45188 ...	—	43.44	—	18.2	—	14.8	—	11
B.45189 ...	—	34.51	—	20.6	—	17.4	—	15
B.45200 ...	—	30.68	—	19.4	—	16.5	—	6
B.45224 ...	40.58	41.64	18.2	19.1	15.2	15.9	8	14
B.45267 ...	41.23	38.81	18.8	19.7	13.9	15.1	39	14
B.45270 ...	—	45.83	—	18.5	—	15.2	—	7
B.45292 ...	—	27.65	—	20.6	—	17.0	—	10

* *Some plots damaged by wood ants*

The following differences between mean yields may be considered significant :—
Portland ± 4.96 tons cane per acre.
Claybury ± 5.18 „ „ „ „

At Portland, B.43337 gave by far the heaviest yield of second ratoon cane and was significantly better than any of the other varieties tried. B.43391 and B.41227 also performed well, and were significantly better than all other varieties with the exception of B.43337. B.4362 also gave quite a satisfactory yield of second ratoon cane.

As usual, B.4362 had the best juice quality followed by B.41227 and B.4098. B.45267 and B.43391 gave juices with the lowest sucrose content.

This trial and the one at Claybury were cut relatively early in the crop season, and none of the varieties was ripe, particularly B.43391, which matures late in a normal crop season.

At Claybury, B.43391 gave the heaviest yield of second ratoon cane, and was significantly better than all of the other varieties tried except B.41227, which was next, followed by B.43337, B.45270 and B.41211. All of these varieties were significantly better than B.37161, but only B.41227 significantly outyielded B.4098.

As usual, B.4362 had the best juice quality, followed by B.45189 and B.45292. B.45267 gave the poorest quality juice.

TABLE XIX

Select Seedling Trials—First Ratoons

Soil Type:— Group II (c) High Rainfall

Portland—Cut 9th February, 1951

VARIETY	Tons Cane per Acre	% Sucrose in Juice	No. of Rotten Canes per Plot
B.37161	34.59	17.6	9
B.4098	35.93	17.2	10
B.41211	47.17	15.2	13
B.41227	42.90	17.1	10
B.44341	34.60	17.9	8

A difference of ± 4.74 tons cane per acre between the mean yields may be considered significant.

In this trial, B.41211 gave the heaviest yield of first ratoon cane and was significantly better than B.37161, B.4098 and B.44341. B.41227 gave the second heaviest yield of cane and was also significantly better than the other three varieties. The differences between the mean yields of B.37161, B.4098 and B.44341 cannot be shown to be significant.

B.44341 had the best juice quality followed by B.37161, B.4098 and B.41227. B.41211 was obviously far from ripe and the juice quality was consequently very poor.

TABLE XX

Third Year Seedling Trials—Plant Canes

Soil Type:— Group IV (b) Intermediate Rainfall

Carrington—Cut 18th and 19th April, 1951

VARIETY	Tons Cane per Acre	Z.H.R. Brix	% Sucrose in Juice	No. of Rotten Canes per Plot
B.37161	47.01	20.1	16.7	15
B.4098	47.86	22.6	19.4	6
B.41211	36.50	21.3	17.9	96*
B.4466	48.06	19.9	16.7	14
B.46103	47.84	20.7	17.9	13
B.4738	45.79	21.1	18.9	15
B.4743	45.30	21.1	17.9	13
B.4744	55.35	22.0	19.3	11
B.4747	39.10	21.2	19.1	64*
B.4764	45.20	22.3	19.1	11
B.4781	46.40	21.2	17.4	18
B.4788	46.26	22.5	19.3	7
B.47135	50.96	19.6	17.1	8
B.47147	39.92	20.0	17.2	35*
B.47151	39.66	20.0	17.6	23
B.47162	44.13	20.9	17.1	36*
B.47214	45.73	20.0	17.0	11
B.47216	48.09	19.9	17.0	16
B.47217	43.31	19.3	15.8	16
B.47258	45.68	22.2	19.7	11
B.47314	42.95	21.7	19.1	9
B.47379	45.87	20.5	16.8	9
B.47380	38.37	22.6	20.2	12
B.47397	44.68	20.8	16.9	20
B.47419	51.88	21.4	19.0	19

* *Damaged by rats*

A difference of ± 5.46 tons cane per acre may be considered significant.

The field in which this trial was located is one of the lowest at Carrington, and for a good part of the growing season it was under water to a greater or lesser extent. Some of the beds on this field were rather higher than others, and this resulted in considerable variation in the yields from block to block.

B.4744 gave the heaviest yield and was significantly better than all other varieties tried with the exception of B.47419 and B.47135. Both of these varieties outyielded the standards as well as B.4466 and B.44216, but the differences between their mean yields cannot be shown to be statistically different. B.41211 was severely damaged by rats, and this is shown to some extent by the number of rotten canes found. Other varieties which suffered heavily in the same way are marked with an asterisk in the table, but others also suffered to some extent, particularly B.47419, which seems to have been attacked late and the canes had not rotted to any extent.

The best juice was given by B.47380, followed by B.47258, B.4098, B.4744 and B.4788. The juice quality of B.47135 was among the poorest. It also holds its trash very firmly and, although it gave a very good yield of cane, it cannot be considered for commercial cultivation.

GENERAL SUMMARY

The outstanding variety of the B.47′ Series as plant cane was B.4744. This cane appears to be a general purpose one, and has been top of the list in all Third Year Seedling Plant Cane Trials with the exception of the one at Portland. This cane is a medium-width, green-yellow cane derived from the cross Co.421 x B.4098. It grows erect at first, but assumes a sprawling habit when the crop becomes heavy. The leaves are of medium width, and the canes shed their trash readily. Some of the late shoots develop to a tremendous length and thickness, as was found in the trial at Carrington. It was also noticed that there was a tendency for the buds near the top of the cane to start shooting as the cane ripened, but this may have been due to a heavy attack of moth borer early in the crop season. The variety produces well above the average number of tillers per stool, and from the ratoon results of the Second Year Seedling Trial at Todds, and observations on the ratooning in the Third Year Seedling Trials, it appears that ratooning will, at least, be satisfactory. The juice quality appears to be quite good, and in our plant cane trials has averaged about 1% sucrose in juice better than B.37161.

The performance of this variety as a plant cane has been so outstanding, that it is being multiplied and will be distributed to planters during the coming planting season. B.4744 is reported to be slightly susceptible to mosaic disease in Jamaica.

B.47419 also performed very well, particularly in the intermediate and high rainfall areas. This variety is derived from the cross P.O.J.2878 x B.34104. It is a thick, brown cane with a ring of white wax below the nodes. The leaves are wide and dark green, and the trash comes off very easily. The juice quality is quite good, and should be very good if the canes are fully ripe. This variety appears to be a slow starter, much more so than B.4744, but once established appears to be capable of making good growth. From observations and the results of the Second Year Seedling Trials, it would appear that this variety will ratoon satisfactorily, if not as powerfully, as B.4744. B.47419 is resistant to mosaic disease in Jamaica.

This variety is also to be distributed to planters along with B.4744 during the coming planting season, but its usefulness will probably be restricted to the high and intermediate rainfall areas.

B.4466 performed well in these trials, and outyielded the standard varieties in every case. However, it was completely outclassed by B.4744 and B.47419. Further, this variety is a late maturer, and would appear to favour a longer growing season than normally obtains in Barbados. Its juice quality was not outstanding in these trials on account of the poor ripening conditions. This variety is known to be a powerful ratooner.

Much was expected of the variety B.4738, which is a medium-width, yellow cane derived from the cross Co.421 x B.4098. The canes are very long, produce a large number of tillers per stool, and remain erect until the crop becomes very heavy. However, with the exceptionally heavy rainfall, particularly early in the growing season, this variety arrowed very heavily and the yields were consequently not what they might have been.

B.47135 also gave some heavy plant cane yields, particularly in the intermediate and high rainfall areas. It holds its trash very firmly, and the juice quality can only be described as poor. This variety cannot be recommended for commercial cultivation.

B.47214, B.47216, B.47217 and B.47379, all of which are derived from the cross B.37161 x B.4098, gave some very good yields of plant cane at times, but their juice quality was poor. Further, they all tended to lie down and 'back-root', which made cutting rather difficult. B.4788, which is derived from the same cross, and looks very much like B.4098, including the deformed nodes, also gave some quite good plant cane yields but, on the other hand, it had an excellent juice.

In the Third Year Seedling First Ratoon Trials, B.46223 and B.46397 gave very heavy yields of first ratoon cane under all ecological conditions. Their juice quality, however, was not outstanding. It has not yet been decided if these varieties are identical with B.41211 which they closely resemble, and until this point is decided, these varieties are not being pushed.

B.45151 gave exceptionally heavy yields of first ratoon cane. It is derived from the cross B.39254 x B.34104 and is an excellent variety for commercial cultivation in every respect except that the canes are relatively thin. The variety germinates very well, grows rapidly and produces a very large number of canes per stool. The canes remain erect with a very heavy crop, and when they do go down, they appear to do so all in one direction, which makes cutting much easier. The canes trash very easily and are completely free from prickles on the backs of the leaf sheaths. Arrowing is very sparse, and the juice quality is excellent. This variety is also reported to be resistant to mosaic disease in Jamaica.

B.46364 also performed well as a ratoon, and this was to be expected, as it is derived from the cross B.35247 x B.3337. It is a medium to thick, purple cane which is almost self-trashing, and remains erect with a very heavy crop. It is free of objectionable hairs on the backs of the leaf sheaths, and has not yet been seen to flower. The juice quality was quite good in the plant cane crops, but was little better than that of B.37161 in the ratoon crops. It would appear that this variety matures late in the crop season and the juice quality was not at its best when the canes were cut.

In the Third Year Seedling Second Ratoon Trials, none of the newer varieties was outstanding. B.43337 and B.43391 gave very heavy yields of second ratoon cane, but had relatively poor juices. B.4362 had an excellent juice, but cane yields were not outstanding. B.41227 gave good yields of second ratoon canes and had a fairly good juice.

In the Select Seedling Ratoon Trials, B.41211 and B.41227 were outstanding, the former giving heavier yields of ratoon cane of inferior sucrose content, while the latter also gave heavy yields of cane but with a better sucrose content. B.41211 normally matures early in the crop season but, unless the crop is ripe, which is indicated by a yellowing of the leaves, the juice quality will be poor. If the crop is allowed to stand for too long after it is ripe, rotting is liable to occur. Generally speaking, the ratoon crops of this variety ripen later and stand longer without rotting than the plant cane crops.

B.44341 has an excellent juice but gives a lower yield than the standard varieties, B.37161 and B.4098.

III. DESPATCH OF SEEDLINGS TO CONTRIBUTING COLONIES

Cuttings of varieties of the B.48′ Series were sent to the various Member Colonies in October, 1950. The varieties and Colonies to which they were sent are listed below :—

British Guiana & Trinidad	B.4847, B.4851, B.4867, B.4881, B.4888, B.4893, B.4895, B.48106, B.48117, B.48125, B.48126, B.48177, B.48179, B.48228, B.48231, B.48251, B.48259 B.48330, B.48332, B.48350, B.48351, B.48372, B.48375, B.48384 and B.48392.
Jamaica	B.4867, B.48106, B.48117 B.48125, B.48126, B.48177, B.48179, B.48251, B.48259, B.48350, B.48351, B.48372, B.48375, B.48384 and B.48392.

Cuttings of five hundred and seven seedlings selected from seventeen different crosses at the nursery stage together with fuzz of twenty crosses were also sent to Jamaica in 1950. All seedlings and crosses sent were selected with the object in view of obtaining seedlings resistant to mosaic disease. Fifty-one varieties from the breeding plots were also sent for mosaic disease resistance tests.

Antigua	B.4847, B.4851, B.4867, B.4881, B.4888, B.4893, B.4895, B.48106, B.48117, B.48126, B.48177, B.48179, B.48228, B.48231, B.48251, B.48259, B.48330, B.48332 and B.48392.
St. Kitts	B.4851, B.4867, B.4881, B.4883, B.4893, B.4895, B.48106, B.48117, B.48126, B.48177, B.48179, B.48259, B.48330, B.48332 and B.48392.
St. Lucia	B.4502, B.45151, B.45152, B.4681, B.46364, B.4726, B.4744, B.4755, B.4781, B.47112, B.47151, B.47214, B.47216, B.47225, B.47228, B.47310, B.47314, B.47379, B.47397, B.47419, B.4847, B.4851, B.4867, B.48106, B.48126, B.48177, B.48179, B.48330, B.48375, B.48384 and B.48392.
Dominica	B.4362.

In addition to the above, the following varieties were also sent to foreign countries :—

Martinique & Guadeloupe	B.43391, B.4408, B.4466, B.4481, B.4733, B.4738, B.4744, B.4747, B.4781, B.47112, B.47151, B.47162, B.47179, B.47204, B.47225, B.47258, B.47310, B.4847, B.4895, B.48177, B.48228 and B.48251.

IV. PERFORMANCE OF VARIETIES IN CONTRIBUTING COLONIES

Barbados

In commercial cultivation in Barbados, the variety situation was characterized by a further decrease in area under the dominant variety B.37161, which however still occupied more than 80% of the acreage for the 1952 crop. The greatest area increase was for B.41211, which represented almost 10% of the acreage for the 1952 crop. This variety again gave exceptionally high yields, and is likely to be extended further. Juice maxima in plant canes are, however, maintained over a comparatively short period, so that it is unlikely to become predominant in any district. There was also an increase in the area under B.4098, which gave good results and is increasing in popularity.

Two new varieties, B.4744 and B.47419 were distributed to growers during the year. Both have given promising results in trials and are worthy of testing on a commercial scale.

Variety percent. acreages for the 1951 and 1952 crops are as follows :—

	1951	1952
B.37161	... 84.76%	80.06%
B.41211	... 6.58%	9.74%
B.4098	... 5.82%	6.87%
B.43391	... 0.73%	1.28%
B.41227	... 0.76%	0.89%
Others	... 1.35%	1.16%

Jamaica

B.34104 was still the major estate variety in 1951, and continued to give fairly good results in spite of heavy attack by mosaic disease, to which it is characteristically tolerant. The acreage under B.3439 showed a slight decrease, but this variety continued to yield well, particularly on the estates in the north and under irrigation elsewhere, and still represented over 20% of the acreage for the 1951 crop. There were increases in the area planted to B.37161 and B.37172: the latter continued to dominate the acreage of the wet east-coast estates.

Of the newer mosaic-resistant varieties, the most popular were B.41227, B.42231 and B.4362, all of which are being rapidly extended.

B.41227 has given very good results except on the eastern estates, where its juice fails to mature satisfactorily.

B.42231 shows most promise as a fall-planted variety, and has good juice quality even in swampy areas. If spring-planted, it arrows too profusely at an early age. It is apparently immune to mosaic disease.

B.4362 is the most popular of the recent commercial varieties, growing vigorously and having excellent juice quality even in the wet eastern zone. Though resistant to mosaic disease, it is not immune, but it should be possible to maintain clean stocks by rogueing, as the few diseased stools which have been seen show very obvious symptoms.

Variety percent. acreages for the 1950 and 1951 crops were as follows :—

	1950			1951
B.34104 ...	54%	...	...	54%
B.3439 ...	22%	...	...	21%
B.37172 ...	6%	...	...	7%
B.37161 ...	4%	...	...	6%
Mixed & others	14%	...	...	12%

Trinidad

Figures for the 1951 crop show a further increase in the area under B.3337, which is the dominant variety on certain of the northern estates. It is grown on a large scale nowhere else in the Caribbean area, but has proved a useful and remunerative variety in north Trinidad, yielding well even under froghopper attack, due to its powers of rapid recovery. B.34104 shows a further marked decline in acreage, though large areas are still being planted, particularly in the south. Yield figures indicate that it is generally inferior at present to the newer B. varieties.

B.37161 and B.37172 both represent increased percentages of the cane area, the former particularly having gained steadily in popularity over the last few years. B.4098 and B.41227 have given good results commercially, and are being extended: the latter has given exceptional yields and appears well suited to parts of Trinidad. B.4362 is being planted on an appreciable scale, but forms an insignificant proportion of the area reaped at present.

Variety percent. acreages for the 1950 and 1951 crops were as follows :—

	1950				1951
B.3337 ...	29.20%	...	...	...	36.94%
B.34104 ...	36.51%	...	...	...	27.20%
B.37161 ...	17.83%	...	...	...	18.77%
B.37172 ...	11.01%	...	...	...	11.29%
B.4098 ...	0.94%	...	...	...	1.46%
B.H.10(12) ...	1.44%	...	...	...	1.40%
B.41227 ...	—	...	...	...	0.49%
Mixed & others	3.07%	...	...	...	2.45%

British Guiana

A re-orientation of variety plantings is taking place in British Guiana since the discovery of Leaf Scald Disease in 1950, but this has not yet been reflected appreciably in the crop-percentage figures. B.34104 remains the major commercial variety, followed by the locally-bred D.14/34, which, however, is being planted to a far less extent than formerly.

B.37161 and particularly B.41227 are increasing in popularity, the former mainly on the river banks and the latter throughout the cane belt. Both show a higher degree of resistance to Leaf Scald Disease than does B.34104, and B.41227 is likely to become the major commercial variety shortly.

Leaf Scald resistance testing is being carried out with a comprehensive series of potential commercial varieties and breeding canes introduced from the Barbados Station.

Variety percent. acreages for 1950 and 1951 were as follows :—

	1950	1951
B.34104	58.4%	67.4%
D.14/34	20.2%	15.0%
B.37161	1.4%	3.8%
B.41227	0.3%	3.6%
Co.421	8.5%	3.5%
Co.419	4.5%	2.7%
Diamond 10	3.1%	0.9%
P.O.J.2878	1.6%	0.4%
Others	2.0%	2.7%

Antigua

B.4098 is now well established as the major variety of the colony, having given good results in all ecological areas. It yields well and gives good juice quality under Antigua rainfall conditions over a wide range of soil types. B.37161 shows a considerable reduction in area since the 1950 crop.

B.37172 continued to give good results on the Blubber Valley clays, and B.41227 is planted to some extent, with satisfactory results on the Blubber Valley loams.

Variety percent. acreages for the 1950 and 1951 crops were as follows :—

	1950	1951
B.4098	42.61%	67.13%
B.37161	38.75%	19.34%
B.37172	3.07%	2.02%
B.34104	7.15%	3.59%
B.3439	7.42%	7.00%
Others	1.00%	0.92%

St. Kitts

As in previous years, St. Kitts has shown a similar trend to Barbados in variety plantings. The area under B.37161 has been appreciably reduced, though it still represents the great majority of the acreage. B.41211 has been extended considerably, and continues to increase in popularity, and there have also been slight increases in B.3337 and B.41227. As in Barbados, B.4362 has given outstanding juice qualities, but does not yield well enough for commercial cultivation generally, being outyielded by B.41211 and B.37161. Of the newer series, B.4466 has shown promise in the drier lower lands, and is worthy of further trial.

The percent. acreage figures for the crop years 1951 and 1952 are as follows :—

	1951	1952
B.37161	93.69%	83.94%
B.41211	2.74%	8.38%
B.34104	1.63%	2.98%
B.3337	0.39%	1.46%
B.41227	0.09%	0.26%
Mixed & others	1.46%	2.98%

A feature of the sugar cane agriculture of St. Kitts has been the tendency in recent years, since the newer varieties have been in large-scale use, for longer ratooning cycles to be practised. The powerful ratooning capabilities of the Barbados varieties now in use have played an important part in lowering production costs, as shown by the following extracted figures for plant cane and ratoon percentages over the last eight years :—

	1944	1945	1947	1949	1951	1952
Plants ...	45.36	44.95	44.22	34.89	35.47	31.87
1st ratoons ...	44.64	43.30	44.42	38.35	36.18	32.74
2nd ratoons ...	7.22	9.36	9.68	20.62	17.04	22.53
3rd ratoons ...	2.78	2.39	1.68	5.92	9.66	9.50
4th ratoons ...	—	—	—	0.22	1.65	3.36

V. STATEMENT OF EXPENDITURE FOR 1950—51

1. Recurrent			
1. Personal Emoluments			$ 12,377.20
2. Provident Fund			763.20
3. Seedling Trials			18,688.80
4. Stationery and Library			706.38
5. Travelling			4,136.40
6. Incidentals			895.92
			37,568.32
2. Non-Recurrent			
Motor Lorry	...$3,360.00		
Illustrated Bulletin	... 218.40		
	3,578.40		3,578.40
Total			$ 41,146.72

APPENDIX I

SUGAR CANE BREEDING, SEEDLING RAISING, B.53' SERIES FIELD NURSERY AND B.52' SERIES SHORT SEASON FIRST YEAR SEEDLING TRIAL PLANTING

Details of Crosses made, their Germinations, Numbers Potted and Numbers Planted in the Field Nursery and/or in the B.52' Short Season First Year Seedling Trial

Cross	GROUP	No. Germinated Nov. 1950 to Jan. 1951	No. Potted Jan. to March 1951	No. Planted in Field Nursery May 1951	No. Planted in B.52' Series Short Season Trial May 1951
	S. officinarum x S. spontaneum				
B.34102 x B.3337 ...	3rd Nobilisation Glagah	5,000	400	327	—
B.38272 x B.3915 ...	,, ,, ,, ...	14	10	9	—
B.3439 x B.3337 ...	4th ,, ,, ...	300	260	241	—
Ba11569 x Co.421 ...	5th ,, ,, ...	60	60	46	—
Co.421 x B.41211 ...	Noble x Glagah x Local	4,500	2,000	1,634	200
B.3439 x B.43391 ...	Noble x Glagah x Celebes	63	63	47	—
B.3439 x B.43337 ...	,, x ,, x ,, ...	—	—	—	—
B.34102 x B.43391 ...	,, x ,, x ,, ...	30	30	21	—
B.35247 x B.3337 ...	,, x ,, x ,, ...	1,200	800	749	—
B.4145 x B.43337 ...	,, x ,, x ,, ...	11	11	11	—
B.43349 x P.O.J.2878	,, x ,, x ,, ...	13	13	10	—
Ba.11569 x B.49138	Noble x Glagah x Local x Celebes	36	36	27	—
		11,227	3,683	3,122	200
	S. officinarum x S. barberi				
B.3365 x B.603 ...	3rd Nobilisation Chunnee	360	360	290	—
B.37161 x B.37193 ...	,, ,, ,, ...	350	160	130	—
B.35206 x B.4022 ...	4th ,, ,, ...	15	13	12	—
		725	533	432	—
	S. officinarum x S. spontaneum x S. barberi				
B.3365 x B.34104 ...	Noble x Local x Chunnee	120	120	115	—
B.3439 x B.43235 ...	,, x ,, x ,, ...	360	360	256	100
B.3439 x Co.290 ...	,, x ,, x ,, ...	700	700	460	200
B.37161 x B.34104 ...	,, x ,, x ,, ...	130	120	100	—
B.37161 x B.4098 ...	,, x ,, x ,, ...	1,500	1,500	830	100
B.37194 x B.4098 ...	,, x ,, x ,, ...	39	39	35	—
B.39177 x B.4098 ...	,, x ,, x ,, ...	36	36	36	—
B.39240 x B.4098 ...	,, x ,, x ,, ...	—	—	—	—
B.4096 x B.4098 ...	,, x ,, x ,, ...	18	18	18	—
B.4699 x B.4098 ...	,, x ,, x ,, ...	350	350	326	—
B.35207 x P.O.J.2878	Noble x Glagah x Chunnee ...	630	600	450	—
B.37161 x B.3337 ...	,, x ,, x ,, ...	1,200	300	260	—
B.37161 x B.37175 ...	,, x ,, x ,, ...	38	38	31	—
B.37161 x P.O.J.2878	,, x ,, x ,, ...	60	53	49	—
B.39207 x P.O.J.2878	,, x ,, x ,, ...	220	200	191	—
B.39207 x B.41227 ...	,, x ,, x ,, ...	28	28	26	—
B.39240 x P.O.J.2878	,, x ,, x ,, ...	—	—	—	—
B.40164 x B.41227 ...	,, x ,, x ,, ...	500	300	240	—
B.4145 x B.37193 ...	,, x ,, x ,, ...	800	800	740	—
B.4362 x B.37193 ...	,, x ,, x ,, ...	3,000	700	479	100
B.4362 x B.39220 ...	,, x ,, x ,, ...	120	120	108	—

APPENDIX I (*Continued*)

Cross	GROUP	No. Germinated Nov. 1950 to Jan. 1951	No. Potted Jan. to March 1951	No. Planted in Field Nursery May 1951	No. Planted in B.52' Series Short Season Trial May 1951
B.4362 x B.40175 ...	Noble x Glagah x Chunnee ...	550	430	413	—
B.4362 x B.41203 ...	,, x ,, x ,, ...	34	34	29	—
B.4362 x B.41227 ...	,, x ,, x ,, ...	36	36	32	—
B.4362 x B.4327 ...	,, x ,, x ,, ...	62	62	55	—
B.4362 x P.O.J.2878	,, x ,, x ,, ...	330	330	173	100
Co.421 x B.41227 ...	,, x ,, x ,, ...	1,200	—	—	—
B.3172 x B.4098 ...	Noble x Glagah x Local x Chunnee	100	100	50	—
B.3353 x B.4098 ...	,, x ,, x ,, x ,,	300	300	115	—
B.3371 x B.34104 ...	,, x ,, x ,, x ,,	100	98	83	—
B.3371 x B.4098 ...	,, x ,, x ,, x ,,	—	—	—	—
B.3439 x Co.419 ...	,, x ,, x ,, x ,,	80	80	70	—
B.34102 x B.34104 ...	,, x ,, x ,, x ,,	450	400	225	100
B.37172 x B.34104 ...	,, x ,, x ,, x ,,	60	51	51	—
B.37172 x B.4098 ...	,, x ,, x ,, x ,,	500	420	388	—
B.37172 x B.42231 ...	,, x ,, x ,, x ,,	200	200	170	—
B.38212 x B.4098 ...	,, x ,, x ,, x ,,	1,000	500	415	—
B.38233 x B.4098 ...	,, x ,, x ,, x ,,	500	—	—	—
B.38233 x Co.419 ...	,, x ,, x ,, x ,,	—	—	—	—
B.39177 x P.O.J.2878	,, x ,, x ,, x ,,	48	48	45	—
B.4092 x B.3337 ...	,, x ,, x ,, x ,,	230	230	200	—
B.4094 x B.35187 ...	,, x ,, x ,, x ,,	—	—	—	—
B.4096 x B(30)L.7	,, x ,, x ,, x ,,	180	160	149	—
B.4096 x B.35187 ...	,, x ,, x ,, x ,,	40	36	28	—
B.4111 x B.4098 ...	,, x ,, x ,, x ,,	1,500	450	300	—
B.4145 x B.34104 ...	,, x ,, x ,, x ,,	150	150	142	—
B.4145 x B.4098 ...	,, x ,, x ,, x ,,	1,300	1,200	760	200
B.4145 x B.42231 ..	,, x ,, x ,, x ,,	100	100	23	—
B.4214 x Co.419 ...	,, x ,, x ,, x ,,	10	10	8	—
B.42279 x P.O.J.2878	,, x ,, x ,, x ,,	15	15	15	—
B.42304 x B.38192 ...	,, x ,, x ,, x ,,	350	350	308	—
B.4362 x B.4098 ...	,, x ,, x ,, x ,,	1,800	1,800	1,524	200
B.4362 x B.43235 ...	,, x ,, x ,, x ,,	395	395	126	100
B.4362 x Co.419 ...	,, x ,, x ,, x ,,	95	95	79	—
B.43253 x B.34104 ...	,, x ,, x ,, x ,,	—	—	—	—
B.43253 x B.4098 ...	,, x ,, x ,, x ,,	300	300	160	100
B.43253 x Co.419 ...	,, x ,, x ,, x ,,	12	12	10	—
B.43358 x B.41227 ...	,, x ,, x ,, x ,,	1,200	200	170	—
B.43358 x P.O.J.2878	,, x ,, x ,, x ,,	600	250	235	—
B.4596 x P.O.J.2878	,, x ,, x ,, x ,,	800	400	370	—
B.45117 x P.O.J.2878	,, x ,, x ,, x ,,	114	114	109	—
B.45137 x B.41227 ...	,, x ,, x ,, x ,,	3,600	320	285	—
B.45166 x B.41227 ...	,, x ,, x ,, x ,,	—	—	—	—
B.45166 x P.O.J.2878	,, x ,, x ,, x ,,	—	—	—	—
B.45170 x B.41227 ...	,, x ,, x ,, x ,,	1,200	720	690	—
B.45170 x Co.419 ...	,, x ,, x ,, x ,,	400	400	184	100
B.45285 x B.37193 ...	,, x ,, x ,, x ,,	3,000	125	107	—
B.4699 x P.O.J.2878	,, x ,, x ,, x ,,	—	—	—	—
B.46199 x B.4098 ...	,, x ,, x ,, x ,,	—	—	—	—
B.4726 x B.4098 ...	,, x ,, x ,, x ,,	1,000	300	190	100
B.48361 x B.34104 ...	,, x ,, x ,, x ,,	200	200	184	—
B.49247 x B.41227 ...	,, x ,, x ,, x ,,	300	250	204	—
Co.421 x B.4098 ...	,, x ,, x ,, x ,,	48	48	44	—
Co.421 x B.47147 ...	,, x ,, x ,, x ,,	3,000	600	442	100
Co.421 x B.47419 ...	,, x ,, x ,, x ,,	300	300	282	—

APPENDIX I (*Continued*)

Cross	GROUP	No. Germinated Nov. 1950 to Jan. 1951	No. Potted Jan. to March 1951	No. Planted in Field Nursery May 1951	No. Planted in B.52' Series Short Season Trial May 1951
B.35197 x B.41227 ...	Noble x Glagah x Celebes x Chunnee	200	300	274	—
B.35197 x B.47361 ...	,, x ,, x ,, x ,,	400	400	375	—
B.37161 x B.43391 ...	,, x ,, x ,, x ,,	25	25	18	—
B.4362 x B.43391 ...	,, x ,, x ,, x ,,	48	48	42	—
B.43349 x B.47310 ...	,, x ,, x ,, x ,,	2,000	350	329	—
B.43349 x B.47320 ...	,, x ,, x ,, x ,,	4,000	180	160	—
B.35197 x B.46397 ...	Noble x Glagah x Local x Celebes x Chunnee	1,300	300	252	—
B.35247 x Co.419 ...	Noble x Glagah x Local x Celebes x Chunnee	800	400	353	—
B.4214 x B.43391 ...	Noble x Glagah x Local x Celebes x Chunnee	—	—	—	—
B.4362 x B.46232 ...	Noble x Glagah x Local x Celebes x Chunnee	40	40	37	—
B.43283 x B.41227 ...	Noble x Glagah x Local x Cleebes x Chunnee	1,600	500	335	100
Co.421 x B.43375 ...	Noble x Glagah x Local x Celebes x Chunnee	800	800	645	100
B.39157 x B.4098 ...	Noble x Local x Celebes x Chunnee	1,000	520	435	—
		49,851	22,864	17,647	1,800
	S. officinarum x S. spontaneum x S. sinense				
B.47183 x P.O.J.2878	Noble x Glagah x Celebes x Sinense	81	81	77	—
B.45154 x B.41211 ...	Noble x Glagah x Local x Sinense	7,000	275	249	—
B.39254 x P.O.J.2878	Noble x Glagah x Sinense	9	8	7	—
B.40272 x B.H.10(12)	Noble x Glagah x Sinense	—	—	—	—
		7,090	364	333	—
	S. officinarum x S. spontaneum x S. barberi x S. sinense				
B.3439 x B.45151 ...	Noble x Local x Chunnee x Sinense	800	500	483	—
B.37161 x B.45151 ...	,, x ,, x ,, x ,,	300	250	190	—
B.39254 x B.34104 ...	,, x ,, x ,, x ,,	12	12	9	—
B.39354 x B.4098 ...	,, x ,, x ,, x ,,	186	186	183	—
B.39254 x B.45236 ...	,, x ,, x ,, x ,,	—	—	—	—
B.45154 x B.37193 ...	Noble x Glagah x Chunnee x Sinense	7,000	300	256	—
Co.421 x B.45116 ...	Noble x Glagah x Chunnee x Sinense	1,200	300	287	—
B.37226 x B.47306 ...	Noble x Glagah x Local x Chunnee x Sinense	62	62	47	—
B.39254 x B.4534 ...	Noble x Glagah x Local x Chunnee x Sinense	600	200	170	—
B.4145 x B.45151 ...	Noble x Glagah x Local x Chunnee x Sinense	150	150	140	—
B.44305 x B.4022 ...	Noble x Glagah x Local x Chunnee x Sinense	—	—	—	—
B.4502 x B.45151 ...	Noble x Glagah x Local x Chunnee x Sinense	600	600	500	—
B.45154 x B.43234 ...	Noble x Glagah x Local x Chunnee x Sinense	—	—	—	—
B.47329 x B.4682 ...	Noble x Glagah x Local x Chunnee x Sinense	68	68	61	—
B.44341 x B.43391	Noble x Glagah x Local x Celebes x x Chunnee x Sinense	—	—	—	—
		10,978	2,628	2,326	—

APPENDIX I (*Concluded*)

Cross	GROUP	No. Germinated Nov. 1950 to Jan. 1951	No. Potted Jan. to March 1951	No. Planted in Field Nursery May 1951	No. Planted in B.52' Series Short Season Trial May 1951
	S. officinarum x S. barberi x S. robustum				
B.4550 x B.603 ...	Noble x Chunnee x Robustum ...	18	18	10	—
B.45107 x B.603 ...	,, x ,, x ,, ...	38	38	30	—
B.45198 x B.391 ...	,, x ,, x ,, ...	6,000	150	104	—
		6,056	206	144	—
	S. officinarum x S. spontaneum x Erianthus arundinaceous				
B.48118 x P.O.J.2878	Noble x Glagah x Erianthus ...	2,000	300	275	—
	Grand Totals	87,927	30,578	24,279	—

APPENDIX II

SUGAR CANE FIRST YEAR SEEDLINGS—B.52' SERIES

List of Crosses and the Number of Seedlings of Each Planted in the Field Nursery (May 1950) and in the First Year Seedling Trial (October 1950)

Cross	GROUP	No. Planted in Field Nursery	No. Planted in First Year Seedling Trial
	S. officinarum x S. spontaneum		
B.4196 x B.37256 ...	2nd Nobilisation Local	5	5
Co.421 x B.41211 ...	Noble x Glagah x Local	1,849	686
Co.421 x B.39156 ...	Noble x Glagah x Celebes	797	348
B.34102 x B.43391 ...	,, x ,, x ,, ...	250	150
		2,901	1,189
	S. officinarum x S. spontaneum x S. barberi		
B.35207 x B.34104 ...	Noble x Chunnee x Local	149	70
B.3365 x B.34104 ...	,, x ,, x ,, ...	250	130
B.37161 x B.40102 ...	,, x ,, x ,, ...	78	50
B.37161 x B.4098 ...	,, x ,, x ,, ...	823	446
B.37161 x B.34104 ...	,, x ,, x ,, ...	470	220
B.45170 x B.34104 ...	,, x ,, x ,, ...	499	160
B.3439 x Co.290 ...	,, x ,, x ,, ...	760	460
B.39207 x B.41211 ...	,, x ,, x ,, ...	388	200
B.41227 x Self ...	Noble x Chunnee x Glagah	23	15
Co.421 x B.41227 ...	,, x ,, x ,, ...	1,208	540
Ba.11569 x B.45111 ...	,, x ,, x ,, ...	24	15
B.42304 x B.41227 ...	,, x ,, x ,, ...	419	205
B.4111 x B.41227 ...	,, x ,, x ,, ...	66	40
B.37161 x B.41227 ...	,, x ,, x ,, ...	150	100
B.4145 x B.41227 ...	,, x ,, x ,, ...	304	160
B.37161 x B.37164 ...	,, x ,, x ,, ...	75	45
B.37172 x B.41227 ...	,, x ,, x ,, ...	47	30
B.37161 v B.41242 ...	,, x ,, x ,, ...	200	70
B.37172 x B.44177 ...	,, x ,, x ,, ...	20	10
B.4362 x B.41227 ...	,, x ,, x ,, ...	37	30
B.3439 x B.41227 ...	,, x ,, x ,, ...	80	60
B.34102 x B.4098 ...	Noble x Chunnee x Local x Glagah ...	400	200
B.44182 x B.4098 ...	,, x ,, x ,, x ,, ...	52	38
B.4362 x B.4098 ...	,, x ,, x ,, ,, ...	117	70
P.O.J.2364 x B.34104	,, x ,, x ,, x ,, ...	617	207
Co.421 x B.34104 ...	,, x ,, x ,, x ,, ...	457	160
B.38203 x B.34104 ...	,, x ,, x ,, x ,, ...	150	45
B.38233 x B.34104 ...	,, x ,, x ,, x ,, ...	213	75
B.4094 x P.O.J.2878	,, x ,, x ,, x ,, ...	7	5
B.37161 x Co.419 ...	,, x ,, x ,, x ,, ...	300	120
B.37161 x B.43214 ...	,, x ,, x ,, x ,, ...	935	360
B.4145 x Co.281 ...	,, x ,, x ,, x ,, ...	9	5
B.4145 x B.4098 ...	,, x ,, x ,, x ,, ...	1,202	790
B.4145 x B.40102 ...	,, x ,, x ,, x ,, ...	7	5
B.4145 x B.40105 ...	,, x ,, x ,, x ,, ...	13	10
B.48361 x B.4098 ...	,, x ,, x ,, x ,, ...	150	100
B.4214 x B.41227 ...	,, x ,, x ,, x ,, ...	29	20
B.37161 x B.42231 ...	,, x ,, x ,, x ,, ...	170	97
B.4558 x B.4098 ...	,, x ,, x ,, x ,, ...	540	300
B.37161 x B.42114 ...	,, x ,, x ,, x ,, ...	200	100
B.37172 x B.4098 ...	,, x ,, x ,, x ,, ...	535	300
B.37172 x B.4226 ...	,, x ,, x ,, x ,, ...	250	150
B.46190 x B.4098 ...	,, x ,, x ,, x ,, ...	400	200
B.4373 x B.4098 ...	,, x ,, x ,, x ,, ...	286	150

APPENDIX II (*Concluded*)

Cross	GROUP	No. Planted in Field Nursery	No. Planted in First Year Seedling Trial
B.38233 x B.4098 ...	Noble x Chunnee x Local x Glagah ...	266	140
B.37172 x Co.281 ...	„ x „ x „ x „ ...	30	20
Co.421 x B.4098 ...	„ x „ x „ x „ ...	337	200
B.38272 x B.4098 ...	„ x „ x „ x „ ...	488	280
B.4145 x B.40118 ...	„ x „ x „ x „ ...	70	30
B.3439 x Co.419 ...	„ x „ x „ x „ ...	291	150
B.35197 x B.41227 ...	Noble x Chunnee x Glagah x Celebes ...	398	155
B.35247 x B.41227 ...	„ x „ x „ x „ ...	150	60
B.35207 x B.48394 ...	„ x „ x „ x „ ...	79	50
B.35197 x B.46136 ...	„ x „ x „ x „ ...	505	266
B.37161 x B.43391 ...	„ x „ x „ x „ ...	116	58
B.35197 x B.34104 ...	Noble x Chunnee x Local x Celebes ...	309	100
B.35247 x B.34104 ...	„ x „ x „ x „ ...	100	34
B.43349 x B.34104 ...	Noble x Chunnee x Glagah x Local x Celebes	200	80
B.44167 x B.34104 ...	„ x „ x „ x „	351	144
B.42304 x B.46265 ...	„ x „ x „ x „	150	70
B.4145 x B.43290 ...	„ x „ x „ x „	7	5
B.35197 x B.42231 ...	„ x „ x „ x „	310	145
B.43358 x B.43127 ...	„ x „ x „ x „	149	75
B.45137 x B.39156 ...	„ x „ x „ x „	42	30
B.43283 x B.41227 ...	„ x „ x „ x „	909	450
		18,366	9,105
	S. officinarum x S. spontaneum x S. sinense		
Ba.11569 x B.35276 ...	Noble x Glagah x Sinense	17	10
	S. officinarum x S. spontaneum x S. barberi x S. sinense		
B.40272 x B.46248 ...	Noble x Chunnee x Glagah x Local x Sinense	8	5
B.45154 x B.4098 ...	„ x „ x „ x „	672	250
B.45155 x B.4098 ...	„ x „ x „ x „	150	75
B.40272 x Co.290 ...	„ x „ x „ x „	540	177
B.46288 x B.37261 ...	„ x „ x „ x „	8	5
B.45119 x B.4098 ...	Noble x Chunnee x Local x Sinense ...	150	100
		1,528	612
	S. officinarum x S. spontaneum x S. robustum		
B.4145 x B.48122 ...	Noble x Glagah x Robustum	39	20
B.4145 x B.48121 ...	„ x „ x „	6	2
		45	22
	S. officinarum x S. spontaneum x S. barberi x S. robustum		
B.48118 x B.4098 ...	Noble x Local x Chunnee x Robustum	100	50
B.45198 x B.4098 ...	„ x „ x „ x ...	100	50
B.4699 x B.4454 ...	„ x „ x „ x „ ...	38	28
		238	128
	S. officinarum x S. spontaneum x S. barberi x S. sinense x S. robustum		
B.48306 x B.4098 ...	Noble x Glagah x Local x Chunnee x Sinense x Robustum	200	100
	GRAND TOTALS	23,295	11,166

APPENDIX III

CENTRAL SUGAR CANE BREEDING STATION BRITISH WEST INDIES

ADVISORY COMMITTEE

EIGHTEENTH MEETING — BARBADOS

November 13th to 16th, 1951

The following members of the Committee attended :—

Barbados	Mr. C. C. Skeete, O.B.E., Director of Agriculture, Chairman
Imperial College of Tropical Agriculture	Mr. H. J. Page, C.M.G., O.B.E., Principal
British Guiana	Mr. H. H. Croucher, Director of Agriculture
Jamaica	Mr. R. F. Innes, Director of Research, Sugar Manufacturers' Association (of Jamaica) Ltd.
Leeward Islands	Mr. E. R. H. Martin, Assistant Agricultural Superintendent, Antigua
Trinidad	Mr. C. H. B. Williams, Deputy Director of Agriculture
Windward Islands	Mr. M. A. G. Hanschell, Director of Agriculture, Grenada

Sir John Saint, Kt., C.M.G., O.B.E.

The following persons also attended sessions of the meeting and took part in the discussions:—

Mr. E. S. Robinson	Director, B.W.I. Sugar Association.
Mr. P. E. Turner, O.B.E.	Sugar Agronomist, Development and Welfare Organisation.
Mr. G. C. Stevenson	Cytogeneticist, B.W.I. Central Sugar Cane Breeding Station.
Mr. B. deL. Inniss	Botanist, B.W.I. Central Sugar Cane Breeding Station.

PROCEEDINGS OF THE COMMITTEE

The proceedings of the Advisory Committee were as follows :—

PROGRESS REPORT ON THE WORK OF THE STATION AND BREEDING PROGRAMME

289. The Botanist submitted a progress report on the work of the Station for the period 1st of October, 1950, to the 30th of September, 1951, together with the proposed breeding programme for 1951.

290. The Committee expressed satisfaction that good progress was being maintained.

291. The Committee recommended that selection of new varieties at the ratoon stage should be introduced as a part of the Station's selection technique. It was agreed that such selection work should be conducted on a limited scale at the outset with seedlings of specially chosen crosses.

292. The Committee also recommended that, in view of the importance of sugar cane wax as a by-product of the sugar industry, every possible step should be taken to ensure that, other things being equal, varieties with a high yield of wax are selected. It was agreed that, in the first instance, the Advisory Committee of the B.W.I. Sugar Research Scheme should be invited to advise as to methods to be adopted for testing differences in wax yield as determined by variety, environment and processing.

PERFORMANCE OF SEEDLINGS IN MEMBER COLONIES

293. The Botanist submitted a report on the performance of varieties in Barbados and the Cytogeneticist reported on the performance of varieties in the other member colonies.

294. The Committee requested that, in future, notes be included in this report on the performance of Barbados varieties in other contributing territories.

THE CYTOGENETICIST'S REPORT FOR THE YEAR 1950—51 AND PROGRAMME OF WORK FOR 1951—52

295. The Cytogeneticist presented a report on his work for the year. He reported that cytological investigations had been started, and that progress had been made in the evolution of satisfactory techniques for the study of sugar cane chromosomes. Pure-line breeding had been continued, and the first series of selfs and sib-crosses had been planted in the breeding plots for use in the 1951 breeding season. Work had been started on the measurement of pollen-grain sizes and on the stem-epidermis patterns in various *Saccharum* species and hybrids. An investigation on the derivation of B.3439 had shown that this variety is not, as had been previously thought, a "noble" cane, but is a nobilization of the 112-chromosome Javan form of *S. spontaneum*.

296. Additions had been made to the Station's collection of variety drawings in water colour, and a specimen colour-plate prepared from one of them had been received from a British firm. Quotations for a bulletin of variety illustrations with descriptive text had been obtained.

297. Visits had been made during the year to the U.S.A., British Guiana, Guadeloupe, St. Lucia and Grenada, and reports on these visits had been published.

298. The Committee expressed satisfaction with the progress which had been made, and complimented Mr. Stevenson on his work.

299. With regard to the programme for 1951—52, the Cytogeneticist stated that he proposed to apply for vacation leave from March to October, 1952, but that if there should be any request for a special visit to any member colony, this could be made before March, 1952.

THE INTRODUCTION OF SUGAR CANE AND FODDER GRASS VARIETIES INTO THE CARIBBEAN AREA

300. The Committee took note of the report of the Acting Chairman of the Central Plant Quarantine Committee that the proposed new quarantine station is not yet ready for operation. The Committee deplored the delay in the delivery of the new glass house which had been ordered through the Crown Agents from the United Kingdom, particularly in view of the urgent need for the introduction of parent material for breeding. In this connection also, it was emphasised that the offer of the facilities of the quarantine station had already been accepted by certain non-British territories in the Caribbean area. The Chairman was asked to make strong representations to the Secretary of State for the Colonies on this matter.

301. The Committee recommended that the whole question of the dangers to the sugar cane industry associated with the importation of sugar cane and fodder grass planting material, without adequate quarantine, should be referred to the Research Council of the Caribbean Commission for urgent consideration.

PHOTOPERIOD EXPERIMENTS FOR THE CONTROL OF ARROWING

302. The Botanist gave an account of the results which had been obtained during the past year from the illumination experiment for the control of arrowing. Having regard to the disappointing nature of these results, the Committee considered that no useful purpose would be served by continuing this investigation.

303. The Botanist reported that it had so far not been possible to use the variety *S. spontaneum* (Burma) for breeding purposes owing to its shy and unreasonable flowering habits. He emphasised the desirability of using this variety as a parent and recommended that arrangements be made for growing plants of this variety under reduced light conditions.

304. The Committee agreed that the necessary expenditure should be incurred for this work.

ADDITIONAL LAND FOR CANE BREEDING

305. The Committee approved of the terms arranged by the Chairman for the lease of four acres of land adjacent to the cane breeding plots at Groves for a period of seven years beginning on the 1st of July, 1952.

AMENDMENT TO STATEMENT OF POLICY

306. The Committee decided that the Statement of Policy should be amended (a) by deleting the word "recent" in line 1 and (b) by substituting the figure "$750 (B.W.I.)" for "£50" in line 2 of subsection (b) of section 4 of the memorandum referred to in minute No. 265.

BRITISH HONDURAS

307. The Committee approved of the terms of membership communicated to the Government of British Honduras, subject to the variation by the Committee from time to time of the amount of the annual contribution.

SURINAM

308. The Committee agreed that Surinam should become a foreign contributor to the Station, subject to the payment of such annual contribution as the Committee may determine from time to time.

INTRODUCTION OF HAWAIIAN SUGAR CANE VARIETIES

309. The Committee noted and approved the arrangements made for the introduction on an exchange basis of Hawaiian sugar cane varieties for breeding purposes and agreed not to release them for commercial use.

ILLUSTRATED BULLETIN ON SUGAR CANE VARIETIES

310. The Committee reviewed the draft bulletin containing a description and illustration of a sugar cane variety prepared in accordance with the decision recorded in minute No.273. It was agreed that arrangements should be made as soon as possible to publish 500 copies of a printed bulletin containing a descriptive account, with illustrations, of the ten most successful commercial varieties so far distributed from the Station; and that the form of the bulletin should be such as to permit the addition, from time to time, of descriptive accounts and illustrations of new commercial varieties.

FACILITIES FOR IRRIGATING BREEDING PLOTS

311. The Committee discussed the proposal that irrigation facilities should be provided at Groves to encourage arrowing in a dry year and in the first place authorised the Chairman to incur limited expenditure on experimental work in this connexion.

MISCELLANEOUS EQUIPMENT

312. The Committee authorised expenditure on —

(a) the purchase of a new calculating machine;

(b) the purchase of a grass cutting machine;

(c) the replacement of the existing wooden framework over the potting nursery by an iron framework;

(d) repairs to soil bins.

ADDITIONAL AGRICULTURAL ASSISTANT

313. The Committee agreed that an additional Agricultural Assistant is necessary for the work of the Station and that provision should accordingly be made in the annual Estimates of the Station for an additional post of Agricultural Assistant in the salary grade of $1,200 x 72 to $1,920 (E.B.) x 96 to $2,592 per annum.

314. The Committee agreed that the Chairman should appoint an Officer in the post at such point in the scale as he may consider necessary.

STATISTICAL CLERK

315. The Committee agreed that the salary scale of the Statistical Clerk recorded in minute No. 262 should be amended so as to increase the maximum of the scale to $1,728 (£360).

FINANCE

(a) Contributions from Member Colonies

316. In view of the increased cost of operating the Station, the Committee recommended that the annual grants from member Colonies, other than Barbados, as specified in minute No. 240, should be increased with effect from the current year beginning 1st October, 1951, and allocated between the several Colonies as follows :—

	$ B.W.I.
British Guiana	15,000
Jamaica	16,000
Trinidad	13,000
St. Kitts	3,000
Antigua	1,500
St. Lucia	600
British Honduras	500
St. Vincent	200
Grenada	200
Total	50,000

317. The Committee further recommended that, unless further increased expenditure becomes necessary for unpredictable reasons, the rates of contribution recorded in the foregoing minute should be effective for a period of five years in the first instance.

(b) Contributions from Foreign Countries

318. The Committee considered that it was necessary, for the same reason, to ask the foreign contributing territories to increase their respective subscriptions, and accordingly recommended that annual grants from the foreign countries should be at the following new rates with effect from the current year beginning on 1st October, 1951 :—

	$ B.W.I.
Martinique	1,500
Guadeloupe	1,500
Dominican Republic	7,200
Venezuela	1,500
Dutch Guiana	500
Total	12,200

(c) Emoluments of the Post of Botanist

319. The Committee recommended that, provided the revenue of the Station is increased in the manner proposed in minute No. 316, the emoluments of the post of Botanist be so adjusted as to be equivalent to those of an expatriate officer in the post of Senior Scientific Officer in the British Colonial Research Service, the new emoluments to become effective from 1st October, 1951.

FINANCIAL STATEMENTS

320. The Committee approved of the appended financial statements.

ESTIMATES OF EXPENDITURE

For the B.W.I. Central Sugar Cane Breeding Station's Financial Year October, 1951 to September, 1952

ITEM	Voted 1950—51	Expenditure 1950—51	Estimates 1951—52	Estimated Expenditure on Cane Breeding by Barbados Government 1951—52	Estimated Total Expenditure on Cane Breeding 1951—52
	$ c.	$ c.	$ c.	$ c.	$ c.
1. Recurrent					
Personal Emoluments :					
Chairman	480.00	480.00	480.00	—	—
Botanist	4,224.00	4,224.00	4,368.00	—	—
Cost of Living Allowance ...	—	—	156.00	—	—
Two Agricultural Assistants	3,928.80	3,928.00	4,096.00	—	—
Cost of Living Allowance	—	—	312.00	—	—
One Agricultural Assistant ...	—	—	1,200.00	—	—
Cost of Living Allowance	—	—	130.00	—	—
Three part-time Assistants ...	1,154.40	1,153.20	1,154.00	—	—
Clerical Assistance	271.20	270.00	270.00	—	—
Statistical Clerk	1,423.20	1,422.00	1,494.00	—	—
Cost of Living Allowance ...	—	—	156.00	—	—
Steno-Typist	900.00	900.00	948.00	—	—
Cost of Living Allowance ...	—	—	132.00	—	—
Cost of Living Allowance for 1950—51 :					
Botanist	—	—	45.50	—	—
Two Agricultural Assistants	—	—	91.00	—	—
Statistical Clerk	—	—	45.50	—	—
Steno-Typist	—	—	37.50	—	—
	12,381.60	12,377.20	15,115.50	14,520.00	29,416.00
Provident Fund	1,046.40	763.20	1,084.00	—	1,084.00
Seedling Trials	18,720.00	18,688.80	22,920.00	21,360.00	44,280.00
Stationery and Library ...	720.00	706.80	1,680.00	446.00	2,126.00
Travelling	6,240.00	4,136.40	3,120.00	3,120.00	6,240.00
Entertainment	—	—	480.00	—	480.00
Incidentals	960.00	895.92	960.00	504.00	1,464.00
	40,068.00	37,568.32	45,359.50	39,950.00	85,090.00
2. Non Recurrent					
Reserve Funds :					
(a) Motor Lorry	3,840.00	3,360.00	—	—	—
(b) Road construction ...	960.00	—	1,104.00	—	—
(c) Illustrated Bulletin ...	960.00	218.40	1,920.00	—	—
(d) Additional Land ...	3,840.00	—	960.00	—	—
(e) Water pump	—	—	4,500.00	—	—
(f) Photoperiod Experiment	—	—	240.00	—	—
(g) Calculating machine —	—	—	575.00	—	—
(h) Iron framework ...	—	—	960.00	—	—
(i) Irrigation	—	—	1,000.00	—	—
(j) Grass cutter	—	—	500.00	—	—

B.W.I. CENTRAL SUGAR CANE BREEDING STATION

Statement of Receipts and Payments for the Cane Breeding Station during the Financial year—October, 1950 to September, 1951

Receipts 1950—51		Payments 1950—51		
	$ c.		$ c.	$ c.
Savings brot. forward ...	$10,945.40	**Recurrent**		
RECEIPTS 1950—51		PERSONAL EMOLUMENTS :		
Received from Member		Chairman	480.00	
Colonies in respect of		Botanist	4,224.00	
contributions due for		Two Agric. Assistants ...	3,928.00	
the Station's financial		Three part-time Agric. Assts.	1,153.20	
year as set out below :		Clerical Assistance	270.00	
		Statistical Clerk	1,422.00	
		Steno-Typist	900.00	12,377.20
1949—50				
Jamaica (Government)	6,768.00			
Jamaica (S.M.A.) ...	4,800.00			
1950—51				
British Guiana ...	11,520.00			
Leeward Islands ...	2,152.80	Provident Fund	763.20	
Trinidad (Gov't) ...	4,800.00	Seedling Trials	18,688.80	
Trinidad (S.M.A.) ...	4,800.00	Stationery and Library ...	706.80	
Windward Islands ...	648.00	Travelling	4,136.40	
British Honduras ...	480.00	Incidentals	895.92	25,191.12
				37,568.32
1951—52				
Windward Islands ...		Balance of receipts over		
(St. Vincent)	120.00	payments		9,465.88
	$47,034.20			$47,034.20

STATEMENT OF CONTRIBUTIONS APPROVED, PAID AND DUE

	Approved rate of Annual Contributions	Amount paid in respect of Station's Financial Year		Arrears due
		1949—50	1950—51	
	$ c.	$ c.	$ c.	$ c.
Member Colonies :				
Barbados (estimated)	—	36,307.00	36,499.00	—
British Guiana	11,520.00	11,520.00	11,520.00	—
Jamaica	11,568.00	11,568.00	—	11,568.00
Leeward Islands	3,696.00	3,667.20	3,696.00	—
Trinidad	9,600.00	9,600.00	9,600.00	—
Windward Islands	648.00	648.00	648.00	—
British Honduras	480.00	—	480.00	—
	RESERVE FUND			
Foreign Countries :				
Martinique	960.00	965.36	—	960.00
Guadeloupe	960.00	955.00	—	960.00
Dominican Republic	4,800.00	4,775.00	—	4,800.00
Venezuela	960.00	955.00	—	960.00
Dutch Guiana	240.00	—	240.00	—
	7,920.00	7,650.36	240.00	7,680.00

RESERVE FUND

Revenue 1950 — 51

Received during the financial year 1950—51 from foreign countries in respect of contributions due for the Station's financial year as set out below :—

Amount brought forward		$ 16,376.46
1949—50		
Martinique		965.36
Guadeloupe		955.00
Dominican Republic		4,775.00
Venezuela		955.00
1950—51		
Dutch Guiana		240.00
		$ 24,266.82
Amount expended		3,578.40
Balance carried forward		*$ 20,688.42
*Includes:— Amount lodged in Barclays Bank ...	$ 12,000	
Amount of loan for car purchase ..	1,680	
	$ 13,680	